GAS

ENGINEERING • UTILIZATION • LOAD-BUILDING • MANAGEMENT

FEB 13 1942

1892 50 YEARS OF ACHIEVEMENT

● REYNOLDS Gas Regulator Company originated its first Gas Control in the famed Little Giant Regulator of a half century ago. In the succeeding years it has given the Gas Industry many important improvements in equipment for the control of Natural and Manufactured Gas. The introduction of new regulators especially designed to meet changing requirements is part of Reynolds program of constantly improving its products.

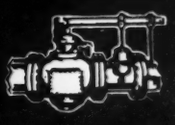
Reynolds is proud of its Leadership through half a century of service to the industry and regardless of where accurate regulation is needed, in the line, at the station, for industrial plants or in the home, there is a superior product by Reynolds.

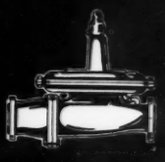
1942

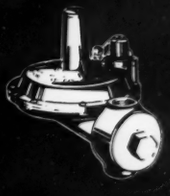
Recognized Gas Control Since 1892

REYNOLDS GAS REGULATOR CO. ANDERSON, INDIANA ★ U.S.A.

The Complete Line of Gas Regulators







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TRUE to its name, the EMCO "1001" Regulator is designed to adequately handle a thousand and one types of control problems. This regulator will serve all installations requiring both small and large flow rates, where supply pressures range upwards to 150 lbs. per sq. in., and must be reduced and accurately held to pressures of 20 lbs. per sq. in. or less.

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A comprehensive bulletin, No. 1059, makin use of four-color sectional diagrams to illustrate th operating principle, will be sent upon request.

PITTSBURGH EQUITABLE METER COMPAN

MERCO NORDSTROM VALVE COMPANY

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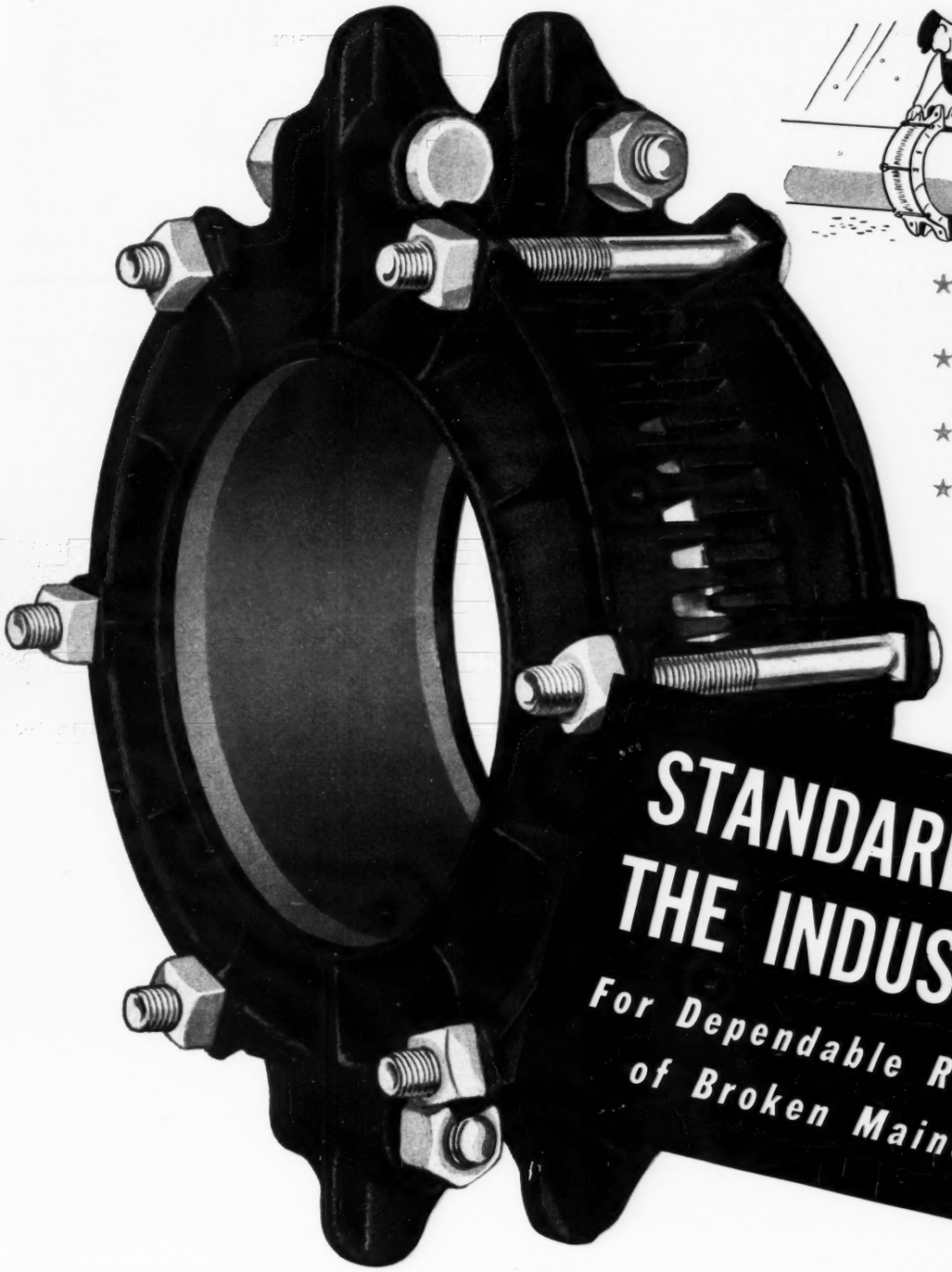

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SKINNER-SEAL SPLIT COUPLING CLAMPS — the original coupling clamps for broken mains — are standard with most gas and water companies because SKINNER-SEAL features save time and money; insure dependable, safe, lasting repairs; prevent future trouble.

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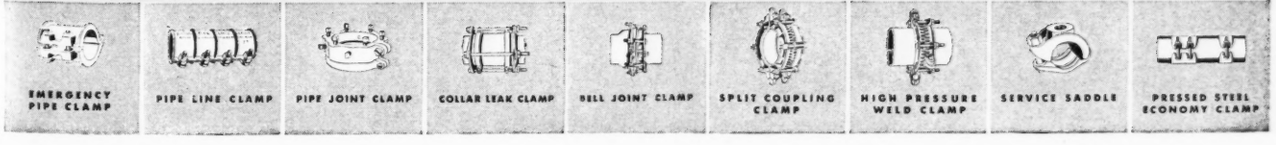
M. B. SKINNER CO. *Est. 1898* SOUTH BEND, IND.



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GAS

REG. U. S. PATENT OFFICE

Eighteenth Year of Publication

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GUEST EDITORIAL

Let Us Look Now to the Future

By CHESTER L. MAY

President, Community Natural Gas Co. and Texas Cities Gas Co., Dallas, Texas

NATURAL gas utility management, along with that of other business in general, has never before been called upon to meet such a multitude of operating perplexities, most of which have arisen with startling rapidity during the past several months. Uniformly, this public service industry has recognized its responsibility to assist our government and aid our cause in every conceivable manner, and prompt and vigorous action has been enthusiastically taken.

In this maze of industrial, economic and even personal changes there is a tendency to lose our direction and fail to think with clarity and vision in the guidance of our particular business. Are we taking advantage of some of the possibilities presented to make our industry most secure for the future? Great numbers are being made familiar with natural gas service who never before had the opportunity. For the first time in history, army tents and barracks, housing hundreds of thousands of men, are being heated with gas. The thousands living in low cost housing units are enjoying gas for every fuel need and in a large per cent of these, gas refrigeration is being used. Defense factory employee housing, as well as that for the families of United States Army, Navy and Aviation personnel, are using gas service wherever it is available. New manufacturing and processing industries are starting by the hundreds, old ones are developing like mushrooms and almost invariably these are seeking natural gas fuel. Our service is being popularized through a profusion of avenues, many of which will survive the national emergency.

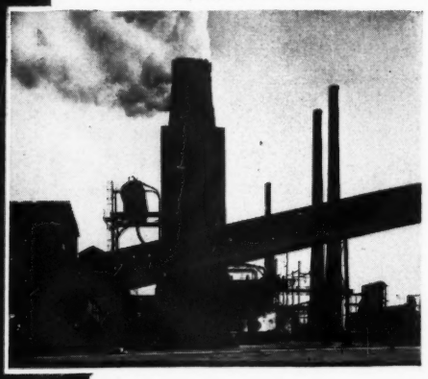
Let there be no diminishing in the quality of our service to present and new customers. Reserves of new employees should be rapidly added and put through an accelerated training to replace men entering our country's armed forces and war industries. These new employees, as well as the old, should be tied in closely to the company and be made to feel a part of the family through proper employee activities and education. This is the time above all when employees should have the group and family spirit and feel the protection which comes from working in a strong, vital, and continuing industry.

A splendid service must necessarily include the furnishing of modern and efficient equipment for new users and for the replacement of badly worn appliances to present customers. In this connection the work of the home service girls was never so important. The line of defense stretches from the battle front clear back to the kitchen, and in this war the kitchen is as important as the factory. Vim, vigor, and vitamins for victory bring into the battle as never before these home service girls whose work can be a great contribution to our ultimate triumph.

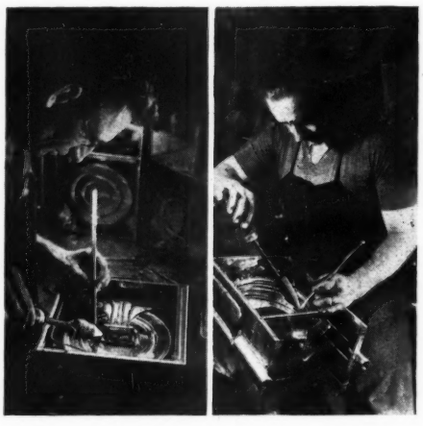
This is no time for lethargy. It should be a period for us to be active, alert, and aggressive to the nth degree with a determination to continue the promotion of our business and render an unexcelled service to our customers. When our victorious fighting forces return to their homes, let us, through the experience gained from wisely meeting every present problem, be better prepared to face whatever the future may hold for us.

The hazards and intricacies of the natural gas business have always been such as to draw clear thinking, resolute men of vision to its ranks. That such is the fact will be well proven during the present period if we show the leadership and judgment which our industry has demonstrated throughout its great history.

Photos by Robert Yarnall Richie



I serve . . .



It serves the community, without fanfare, in times of tranquillity and times of stress. The **AMERICAN** Tinned Steelcase Meter has been quietly doing its increasingly effective job since 1859—when first appeared the Glover two-diaphragm slide-valve dry gas meter. ▷ Millions of **AMERICAN** Tinned Steelcase Meters are today busy at their appointed tasks . . . each a symbol of protection to gas company and consumer equally. No other instrument has done more to further the cause of reliable gas measurement. ▷ REVISED CATALOG TG-4 indicates the latest technological advances in design and new skills in manufacture which have brought increased meter capacity, improved performance and accuracy . . . affording lower cost per meter-dollar invested, and sound consumer relations.

GENERAL OFFICES • 60 EAST 42ND STREET, NEW YORK, N. Y.

AMERICAN
METER COMPANY
INCORPORATED (ESTABLISHED 1836)

1655

TINNED STEELCASE METERS

THERMALLY THINKING

Civilian Defense Work

ONE of the first essentials of patriotism in time of war is that every citizen hold himself in readiness to serve in whatever capacity he may be of the greatest benefit to his country, and not insist that he himself be the sole judge of the time and the manner in which his services can best be used.

The whole war effort is being constructed around the principle that every man is willing to serve, and it is up to the experts to say when and how they will use him. To this end General Hershey has urged an end of the recruiting system for the army and navy, with entire reliance on selective service for the additional man power needed. Charged with the responsibility of raising an army that may eventually number 10 million men, the head of the selective service has foreseen the grave disruption of essential production that may result if an indiscriminate rush to the colors is permitted to continue.

For millions to whom, by reason of age, responsibility for dependents or other causes, military service must be denied, there is a strong appeal to become identified immediately with some activity sponsored by the Office of Civilian Defense as the best indication of an outlet for their normal and laudable patriotic urge. Now it is becoming apparent that in this field of service also there must be exercised restraint and good judgment, particularly on the part of gas company and other public utility employees. For a hundred men, any one of whom would be competent to act as air raid warden, auxiliary fireman, or auxiliary policeman, there might be only one who would be competent to deal with a broken gas main or a damaged holder. A maintenance employee, capable of bagging or valving off the damaged distribution lines in a bombed area would be simply wasted if he were set to watching for incendiary bombs on some apartment house roof.

It is safe to say that every gas company in the country has built or is building its own emergency crews, trained and organized to cope with the problems that either air attack or sabotage will create. Organized on a voluntary basis, their effective functioning is predicated on the assumption that their personnel will be on call and available in any hour of emergency, day or night. Ordinary civilian defense activities cannot and should not have first call on the services of these highly trained experts, who alone are competent and qualified to restore damaged gas facilities.

A recent booklet issued by the Director of Civilian Defense lists no less than thirteen major activities in a community that citizens who wish to volunteer can perform. These run the gamut from "civilian protection programs" to "volunteer opportunities in the field of recreation and informal education." Certainly in such a heterogeneous collection of activities there should be a place for "opportunities in the rehabilitation and restoration of essential public utility services," yet this classification is conspicuous by its absence.

Gas company managements have been reluctant to discourage the enlistment in civilian defense of their technical employees, lest they be accused of lack of patriotism or selfish concern for the welfare of their own properties. But it is well to remember that the prolonged disruption of an essential service of light or heat can do more to disrupt civilian morale than almost any other single catastrophe short of death or wholesale destruction.

Since the default of national civilian defense has now assumed the proportions of a national emergency in itself, we believe that the time is ripe and the obligation is imposed on the management of all essential public utilities, particularly those whose services are carried underground, to set up a joint organization in every community so that all emergency activity may be coordinated. A break in a gas main in any large city would inevitably be accompanied by breaks in telephone, telegraph, electric, water, sewer or steam lines, and might well be serious enough to disrupt every one of these services as the result of a single freak explosion.

To allow the interference of well-intentioned amateur firemen to further complicate such a serious situation would be to invite wholesale disaster, not only to surrounding property, but to the volunteer workers as well. Only trained utility crews could conceivably handle such a situation, and their response in force should be assured in advance by properly inter-utility organization.

We believe that the gas industry might well take the lead in creating such organization, and we believe that the Office of Civilian Defense should grant it the prerogatives and the authority necessary to its success.

But unless, and until, general Civilian Defense takes into special consideration the problems of public utility services, the patriotic duty of gas company employees can best be discharged within the ranks of their own emergency services.

■ ■

Crisis Copy

SO FAR the root-hog-or-die aspects of war have been confined chiefly to the newspaper headlines and there are still millions of Americans in high places and low who entertain the lingering hope that somehow the whole thing will pass over like a New Year's Day headache, accompanied by a groaning resolution never to let it happen again. Nowhere is this Dr. Panglos attitude, that "all is for the best in the best of all possible worlds" more in evidence than under those gilded domes of creative silence from which advertising campaigns emenate.

We have found ourselves entertaining repeatedly the heretical feeling that most, if not all, gas industry advertising was due for a complete reevaluation in the light of present national trends; and we are firmly convinced that such a scrutiny would inevitably set its feet firmly in new and more realistic directions.

The old conception was good enough in its day. It preached the story of emancipation of womanhood, of gleaming beauty, of ingenious gadgets that took the burden of thinking off the delicate mind of the fragile homemaker. It was based on the snob appeal that every woman was at least a duchess, or could become one if the old man would just buy her whatever new product was being promoted at the

moment. It must have been good, because statistics show that it sold the merchandise; and when plenty of merchandise was available that, perhaps, was all that could be asked.

But the cult of idleness has been rudely toppled from its throne, and the new conception of work and service to the home and family as well as to the community and nation, has taken its place. Advertising campaigns, based on either the bizarre or the banal—those two great ports of origin from which so many have been launched, will cease to command the attention of a people who even now are defending with their lives and their fortunes the principles upon which this nation was built.

Consumers who have long since grown accustomed to alternating between resisting and succumbing to the lure of something new to replace something still useful, are already finding that the necessity for these decisions is being eliminated from their daily lives. Increasingly the emphasis falls on extracting the maximum in service and satisfaction from existing equipment, regardless of what it may be; and the highest order of patriotism is being invoked to restrain us all from demanding the luxuries and even the conveniences that we were once asked to believe were ours by birthright, obtainable through a minimum of effort.

To those who believe that these things are lamentable—and we are not among them—we can only say that they will get a whale of a lot worse before they get any better. Worse they will be for the pampered, the liberally illusioned, the sequestered souls who cannot yet comprehend that the phrase "sweat, blood and tears" means everyone, and not a handful of beleagured Marines on Wake Island.

What course then, in the light of a new day, should the advertising of the gas industry take, particularly that sizeable portion of the effort that has been in the past directed to the homemaker? Realism, we believe, must be the keynote. The out of the kitchen emphasis must be abandoned, and in its place an adroit presentation not only of the technics, but of the creative rewards of home production for home consumption must be implanted. Conservation, not only of fuel, but of food, must be stressed. The vitamin-saving nutrition theme of the Southern California and the Southern Counties Gas Companies now being promoted is an important step in the right direction. At present this campaign is built around the CP gas range, but its value must not be allowed to rest on the high priced, or even on the new gas range. An honest and avowed determination that every gas user shall get the maximum of value from every ounce of food, as well as from every cubic foot of gas must be the underlying theme of every piece of copy produced.

Too often in the past, though assumed to be glorifying and dignifying the ancient art of homemaking, industry messages have been subtly pointing out new avenues of escape, not only from its responsibilities, but from its compensations as well.

And while we would never for a fleeting instant recommend that the austere phrase be used in all its pristine harshness, we believe that the entire gas industry could profitably ponder the ancient concept, that "Woman's place is in the home."

■ ■

Books for Victory

THE United Service Organization, The American Red Cross, and the American Library Association are sponsoring a campaign to gather millions of books so that the men in our army, navy and merchant marine may be well provided with good reading material.

The campaign, which started on January 12, will continue until March 1. Books on trades, skills, professions, hobbies, current events, travel, mathematics, history and war are wanted, as well as good fiction, humor and mystery stories. Donors of books are asked to send them to their nearest public library. Here is an opportunity for the gas utilities, if they are not already doing so, to offer a definite and worthwhile service towards our national cause by making a systematic effort through their employee organizations to gather books for this campaign.

■ ■

The Future of A. G. A. E. M.

MANUFACTURERS of gas appliances and equipment will shortly be confronted with a grave and far-reaching decision regarding the future of the organization around which most of their association activities in the industry's behalf have revolved — the A. G. A. E. M. Plant facilities that were once devoted to the manufacture of meters, regulators, ranges and water heaters are being transformed into production units for war materials and supplies. Metals that once moved normally into the peace-time output of civilian supplies are now either sharply restricted or unobtainable.

And the end is not in sight. Gas range manufacturers, for example, who were cheered less than two months ago with the belief that their 1942 production would be cut only about 62% of their 1941 output, heard this figure reduced in informal estimate two weeks ago to as low as 15%. Following hard on the heels of this, still another prediction, and from an informed source, was to the effect that within a short time the normal production for any requirement except defense housing, or other Federal projects, would be cut to practically zero.

Whether the unhappy end figure will be reached, we do not presume to even guess. But the handwriting on the wall, of still more greatly curtailed output of appliances and equipment, is plain for all to read. What then of the fate of the Association of Gas Appliance and Equipment Manufacturers, the organization that for seven years has projected the policies and set the pace for the entire gas equipment industry? Should its work be curtailed during the emergency? Discontinued? Or should its objectives be enlarged, and its scope increased?

Manufacturers are under no illusions as to why they support their trade organizations. They do it because they believe that in the long run they derive additional profit from their own individual operations as a result of the co-operative effort that their association dues make possible. It is true also that those with vision and with confidence in the value of long-term endeavor are the most dependable and the most loyal supporters of any group activity. The good-time Charlies who have to have a dollar back before they spend a four bit piece are generally on the outside, kibitzing organization effort, or just inside the door and ready to run when the business curve flattens out.

Right now it is probable that most of the manufacturers who have switched their production over to war orders are making more money than they did on their normal peace-time business. Maybe this won't last—and maybe it will all be taken back in taxes—if anyone knows the answer he has yet to come forward with it. But certainly, in the great majority of cases, poverty cannot be pleaded as a valid excuse for failure to maintain the solid ranks of an essential civilian industry.

The question, then, is not whether or not the work of the association can be afforded by the industry, but whether it serves any valid purpose, during the war, and as a going concern ready to resume its normal activities on the day that complete and total victory has been achieved.

We believe that on both counts—the activities that are crying to be undertaken now and those that will be essen-

tial during even the first hours of peace —the continuation and the expansion of association support is vital to the entire gas industry.

For the present, and during the war, we foresee the necessity for a shifting in emphasis of certain policies, and the undertaking of special or temporary projects closely allied to national defense. The CP range campaign will unquestionably have to be curtailed, or perhaps dropped, at least so far as the emphasis on range sales is concerned. Since existing stocks are still available for retail sale in many localities, and since there is always a sales job indicated wherever there is merchandise to sell, a modest campaign is still justified. And to the extent that manufacturers who expect to be back in the gas range business are willing to underwrite it, the food-nutrition-public health and Vitamins-for-Victory story can be told unceasingly, and as a great and legitimate contribution to the National Defense Program. It is not only possible, it is entirely probable, that as between gas and electric cookery, the one that most closely identifies itself with the public interest in good health, food conservation, and the revival of the art of home making will be the one that will emerge from the war in the dominant position in public esteem.

Let us make no mistake about it! The electrical industry is well aware of the opportunity and the obligation that confronts it. The National Electrical Manufacturers Association is presenting to its members, for 1942, a budget that is nearly 25% in excess of its 1941 costs of operation. Emergency activities, post-war planning and the safeguarding of the industry's competitive position during the emergency account for a large proportion of this increase.

Cooperation with the Government in every phase of the war program is another essential activity that can best be carried on through intelligent and fair association representation. Manufacturers and their representatives swarming over Washington, chasing down PD-1 orders will soon be a thing of the past. But governmental agencies will continue to request information, and industry welfare demands that its representative be able to speak knowingly of the industry, and authoritatively for it. Manufacturers whose plant capacities are not already taken up may be guided by such an organization in the proper procedure to obtain defense orders that will enable them to use most effectively their existing equipment.

Through the agency of its existing facilities, the study of post-war problems and projects requires immediate and continuing study, by the association. Profound social and economic dislocations are the inevitable outcome of every war, and no individual in a once favorable position is justified in believing or even hoping that single-handed and alone he can chart the trend of the future. Thought patterns and public reactions change, and many of them are never restored; only those who are abreast and even ahead of these changes can expect to mold them to the ends of their own best interests.

As a symbol of the unity of an industry, as an earnest of its stake in all-out war, and as a guarantee of its position in the greater aspirations of peace, we believe that the work of its own association, the A. G. A. E. M., should be not curtailed; not discontinued. Its program and its support should be expanded to fit the new demands that today's crisis and tomorrow's opportunity create.

■ ■

The Public Finds Out

N. W. AYER & SON, Inc., widely-known New York advertising agency, has been appointed by a group of 54 electric and combination gas and electric utilities to conduct a national advertising campaign in five weekly publications. Purpose: to tell the American people what the local utility companies are doing in the way of national defense and what they do for the safety and convenience and comfort of the public. According to reports, it is expected that more companies will join in this cooperative advertising effort during 1942.

This page advertisement, sponsored by 54 local electric companies, is the second of a series directed toward the consuming public, appearing each month in five national weeklies. This ad is reproduced from *Time*, January 19, 1942.

Not formed in an association, the companies have individually appointed N. W. Ayer to handle this joint advertising. First advertisements appeared in December, in *Collier's* of the 13th, *Life* of the 15th, *Time* and *Newsweek* of the 22nd, and *Saturday Evening Post* of the 27th. The January advertisements appeared in the same publications just four weeks later. (See cut.)

It is certain from this campaign that, war or no war, the electric utilities are not going to allow the public to forget the essential service that they perform. This indicates certainly that the gas industry should not now even think of curtailing its national advertising activities—if it expects to be remembered after the war. Now, more than ever before, the gas industry's leaders, both those who sell and those who operate, should apply a good portion of their thought and effort towards keeping the public informed—through constant and colorful national advertising — as to gas industry's place in the American way of life.

■ ■

A Universal Language

A STORY to revive our confidence in the indestructible quality of human nature is found in the report on the progress of Leon Citerman, late of Czechoslovakia, and more recently a salesman with the Laclede Gas Light Co., St. Louis, Mo.

A refugee from the German conquest of his native country, he arrived in America without funds and with little better than a nodding acquaintance with American customs and American speech.

But he had one ace in the hole—he knew he was a good refrigerator salesman, having sold Electrolux in Pilsen in the happier days of his own land's independence. Shortly he was able to convince the gas company that all good refrigerator salesmen speak a universal language, and he was given an opportunity to prove his contention.

His first month of selling resulted in the installation of 19 jobs, and since that time he has progressed to the rank of a "100 Servel Star Salesman," having sold and installed 103 refrigerators in his first year.

Certainly the Laclede Gas Light Co., and Mr. Citerman have conspired to demonstrate even in this small way, that much of what is Europe's loss will prove America's gain; and that in this country and in this industry there exists boundless opportunity for those who bring with them ability and imagination and the will to achievement.

GAS at WAR

LAST month the U. S. gas utility industry, buckled down to its task of coping with a first class war, reported progress from various fronts:

Providence, R. I.: The hurricane which recently hit the East Coast area provided the Providence Gas Co. and other utilities with an opportunity for a "dress rehearsal" on operating procedures during a sudden large-scale damage such as might occur from an air raid. The company's emergency men, standing by 24 hours a day as a matter of normal routine, had little difficulty in combating the ravages of the storm. Mobilizing these men, according to R. L. Fletcher, vice president of the company, for an air raid, would be merely an extension of normal procedure.

According to a news report in the *Evening Bulletin*, published on Jan. 13, 1942:

> "In the air raid 'rehearsal' provided by the hurricane, large numbers of houses with gas meters in them were destroyed, roots of falling trees damaged mains and the big gas-holder in East Providence was demolished and burned.
>
> "The manufacturing plant on Allens Avenue caught fire and its basement was flooded 6 to 9 ft. deep with some 2,000,000 gallons of water that had to be pumped out.
>
> "In the downtown area the flood broke meters and flooded the entire downtown gas system.
>
> "At that time we had 78,000 domestic meters in operation and we were able to keep 72,000 in constant service in spite of the hurricane," Mr. Fletcher stated.
>
> "The company is now making application for a shortwave length from the Federal Communications Commission so it can install two-way radio on its repair trucks. This system is being used successfully by the Boston Consolidated Gas Co.," according to Mr. Fletcher.

The publicity regarding gas operations in Providence has been of such a nature as to arrest the fears of the consuming public regarding the possibility of holder explosions and the dangers of asphyxiation and fire from gas emitted from broken gas mains. The public was reassured that the gas company was on 24 hour watch and repeated again the official instructions which gas consumers should follow in the event of an air raid. These are:

1. Turn off only the gas stove burners that are lit, NOT the pilot light.
2. Only shut off the main gas valve if the house is badly damaged. Once it is turned off, do not under any circumstances turn it on again yourself. Call for a trained gas company employee.

Mr. Fletcher, in explaining the official instructions to Providence consumers stated that if a bomb lands so close that its blast snuffs the pilot light, the blast also will punch out all the windows in the room and provide enough ventilation to prevent danger of asphyxiation or explosion.

Pittsburgh, Pa.: Gas appliance dealers and manufacturers in areas contemplating possible blackouts have available now a complete line of "blackout and camouflage" paints, reports the Paint Division of Pittsburgh Plate Glass Co., Pittsburgh, Pa.

Paints in black, smoke gray, earth drab and neutral brick, the company advises, render complete blackout when outside of window is covered with one quart of blackout paint and the inside of the window with a standard interior paint.

But don't just paint your windows or skylights, and with anything; for there's a trick to it. Four precautions lessen danger of glass breakage because of absorption of sun radiation by painted glass: (1) cover entire pane, (2) use only one quart of paint on exterior, (3) apply neutral colors particularly to southern exposures because blackout paint, while giving the greatest opacity, also shows the greatest heat absorption, (4) minimize danger of breakage by applying paint to glass areas of four sq. ft. or less.

Vancouver, B. C.: The plans being made by the combined street railway, electric light, power and gas departments, have not yet been completed, according to John Keillor, gas engineer, of the British Columbia Electric Railway Co., Ltd. The company has, however, deflated its 3,000,000 cu. ft. *waterless* gas holder and put it out of commission for an indefinite period. It happens that this holder is in a vulnerable location, and it was thought wise to deflate it and put it out of commission because of the possible danger of explosion.

The company has three other gas holders of the *water-sealed* type and although there might be some slight inconvenience to the operating staff, the company will be able to continue to give the public a satisfactory supply of gas.

According to word received last month the British Columbia Electric Railway Co. has now moved a gas production plant from Vancouver and re-erected it in Victoria. Because of large increases in the volume of gas sold during the past 18 months the company recognized the necessity of installing an additional gas manufacturing plant in Victoria but due to the uncertainty and difficulty of obtaining equipment and materials brought about by the war, it was decided during the summer to dismantle one of the "economical" water-gas sets in Vancouver and re-erect the same in the Victoria plant.

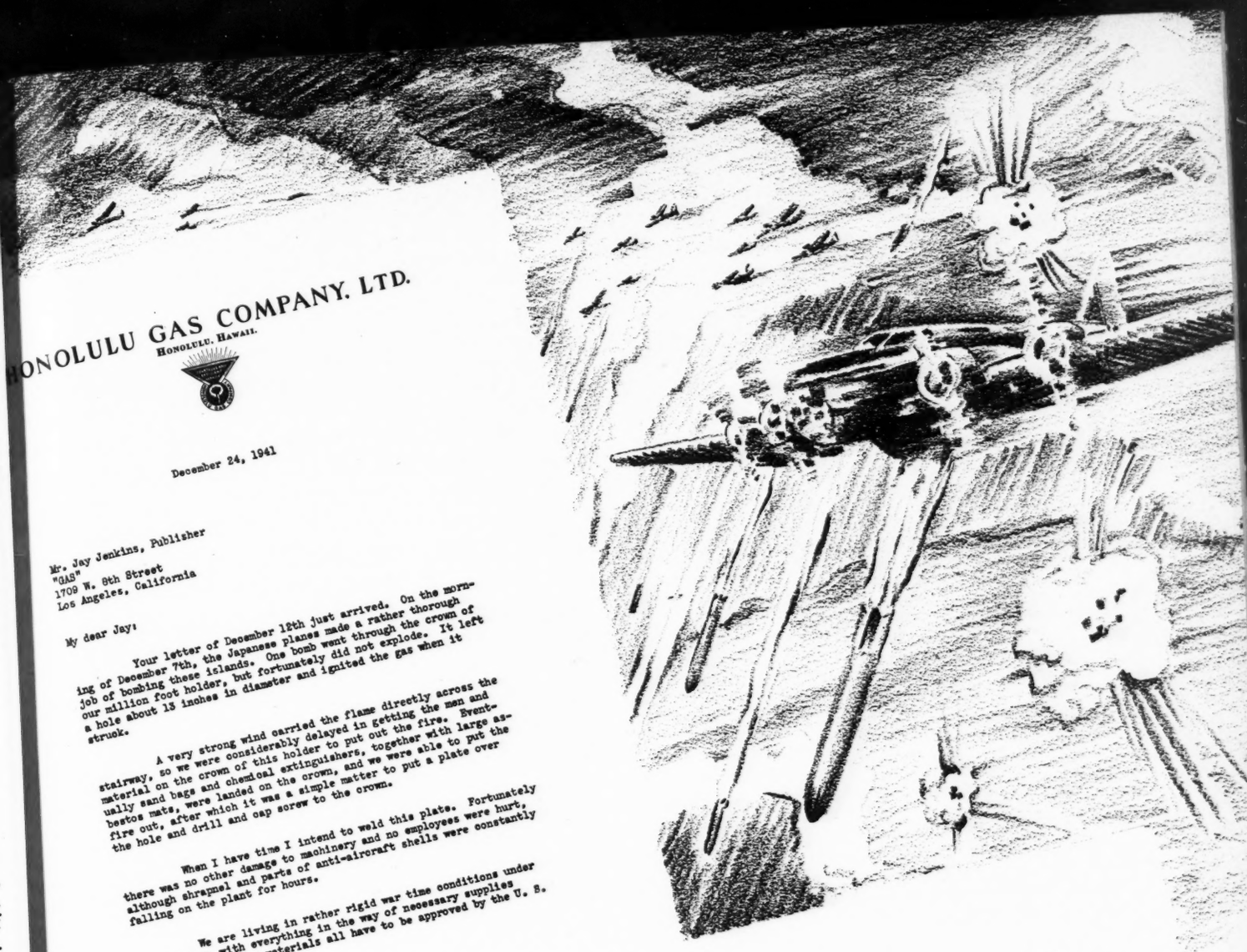
The set comprises a 6 ft. 5 in. diameter generator, carburetor, and superheater of the Merrifield-Wescott-Pearson type and was originally purchased and installed by the British Columbia Electric in its plant in Vancouver in 1907 by the Economical Gas Apparatus

A. G. A. Announces New War Activity Committee

ERNEST R. ACKER

Appointment of a seven-man committee on war activities to replace a 47-man defense group set up by the American Gas Association in May, 1940, is announced by President George S. Hawley of Bridgeport, Conn. The new committee, headed by Ernest R. Acker, president, Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y., will function in an executive capacity in an emergency and will also serve as a clearing house and coordinating body for all defense material and in all Association activities pertaining to the gas industry's part in the conduct of the war. All sectional committees of the Association handling specialized matters relating to defense will report to this committee.

Others on the committee are: Arthur F. Bridge, vice president, Southern Counties Gas Co., Los Angeles, Calif.; Henry R. Cook, Jr., vice president, Consolidated Gas Electric Light & Power Co. of Baltimore, (Md.); J. H. Gill, president, United Gas Corp., New York, N. Y.; J. French Robinson, president, The East Ohio Gas Co., Cleveland, Ohio; and Marcy L. Sperry, president, Washington (D. C.) Gas Light Co. Mr. Hawley will serve ex-officio.



HONOLULU GAS COMPANY, LTD.
HONOLULU, HAWAII.

December 24, 1941

Mr. Jay Jenkins, Publisher
"GAS"
1709 W. 8th Street
Los Angeles, California

My dear Jay:

Your letter of December 12th just arrived. On the morning of December 7th, the Japanese planes made a rather thorough job of bombing these islands. One bomb went through the crown of our million foot holder, but fortunately did not explode. It left a hole about 15 inches in diameter and ignited the gas when it struck.

A very strong wind carried the flame directly across the stairway, so we were considerably delayed in getting the men and material on the crown of this holder to put out the fire. Eventually sand bags and chemical extinguishers, together with large asbestos mats, were landed on the crown, and we were able to put the fire out, after which it was a simple matter to put the plate over the hole and drill and cap screw to the crown.

When I have time I intend to weld this plate. Fortunately there was no other damage to machinery and no employees were hurt, although shrapnel and parts of anti-aircraft shells were constantly falling on the plant for hours.

We are living in rather rigid war time conditions under martial law, with everything in the way of necessary supplies frozen. Orders for materials all have to be approved by the U. S. Engineers.

12-24-41

#2

Mr. Jay Jenkins

The operating of a plant of this size under blackout conditions is quite a problem, as we are running 24 hours and signal lights on the automatic control on the generator as well as boiler gauge glasses have to be inspected regularly. We do this with very dark blue lights and luminous phosphorescent paint on the oil meters and gauges.

All buildings are completely blacked out by heavy black paint on the windows and the necessary lights are completely shaded from outside. In addition to this problem this entire area has been evacuated, and as our gasmakers and boiler firemen and operators nearly all lived in company cottages adjacent to the plant, it became very difficult to know whether we were going to have a crew on the midnight watch or not.

At present I have about ten men sleeping in my office, and our Home Service girls have organized the cooking and supply us regularly with the necessary food. It is absolutely impossible to travel on the streets after dark so all men that come on shift or go off shift after dark must get through the military guards during daylight hours.

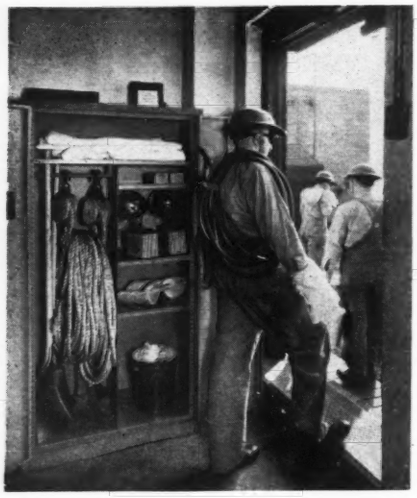
Unfortunately, taking photographs was the last thing we had in mind, so I cannot help you in this respect. I hope however, before long, to give you some photographs and the story on the new construction work still going on at this plant.

Thanks a great deal for your well wishes and letter, and with best wishes and kindest regards, I am,

Sincerely,

E. S. JONES
Chief Engineer

ESJ/w



Interior view of one of the 78 emergency cabinets installed by Consolidated Edison of New York on roof tops to cope with incendiary bombs.

Construction Co., Ltd., of Toronto.

Together with a combination set of slightly larger capacity, the unit has not been in operation since 1928 when the company installed two Humphrey & Glasgow sets of the fully automatic type — self-clinkering, self-steaming, automatic operator and automatic charger.

The set has been housed in a steel frame building adjacent to the Vertical Retort plant and is ready to meet the peak loads of cold weather.

New York, N. Y.: Seventy-eight emergency cabinets (see cut) have been installed near the roofs of commercial buildings owned and operated by the Consolidated Edison System in New York City to cope with possible fires caused by incendiary bombs. One hundred and fifty of the System's Commercial Building's employees have received intensive training in the use of the equipment in the cabinet and an additional 1450 employees also have been instructed in its use in case of emergency. Inquiries from a number of other large corporations indicate that Consolidated Edison's cabinet is serving as a model for similar installations throughout the city. The cabinet contains—1 asbestos blanket 4x8 ft., 1 asbestos blanket 9x9 ft., 2 metal sugar scoops, 1 36-in. wrecking bar, 1 8-lb. sledge hammer, 5 bags sand, 1 block and fall, and 200 ft. of ¾-in. rope, 2 pairs asbestos gloves 16 in. long, 2 long handle square nose shovels, 2 pairs safety goggles, 3 water pails, 2 helmets, 2 emergency lights, 1 large First Aid kit, 1 stirrup pump, 3 fire pails, and 1 fire axe.

San Francisco, Calif.: The Pacific Gas and Electric Co. has compiled and printed a booklet entitled "Blackout Pointers" — a list of do's and don'ts for blacking out your home as recommended by the authorities. The last page of this eight-page booklet repeats again the procedure for household gas users during air raid alarms and blackouts. These procedures, in California, as set up by action of the Subcommittee on Natural Gas, State Council of Defense, December 23, 1941, are:

"It is not necessary to shut off gas appliances during air raid alarms.

"As a precaution ascertain the location of the gas shut-off valve for your building (it is close to the meter). Have a wrench ready but do not shut off that valve unless your building should be actually damaged by bombing or fire. Do not shut off appliance pilot lights. Except under extreme conditions, normal use of gas appliances need not be interrupted. Once the main valve is turned off, do not turn it on again yourself. Call for a trained man."

This eight-page booklet contains illustrations of typical ways to apply blackout materials, provides a shopping tour list of blackout materials, with the sizes available and their approximate prices.

Los Angeles, Calif.: The Southern Counties Gas Co. has issued instructions entitled "Shut-off and Turn-on Procedure During Outages." These instructions, in brief, are:

A. *Preparation in Districts Prior to Emergency:* List the man power of the district, classified in accordance to usefulness as supervisors, group leaders, guides, messengers, etc. Prepare an organization chart showing each person's function and specifying place of assembly in case of bombing or heavy earthquake but not in case of blackout duty.

Obtain four sets of 600 scale maps and by crayon lines divide into numbered sections of about 100 meters each. Two sets are retained at district headquarters, one is for the use of the general group leader at field headquarters, and the fourth is cut up into sections ready for the field group leaders.

Prepare a sufficient number of canvas emergency tool kits for the men available. Also prepare clip-on identification badges which will be in addition to regular identification card.

B. *Organization Chart for Emergency Work:* Sample chart is suggested.

C. *Equipment for Emergency Men:* Lists essential equipment.

D. *Emergency Time Card:* In addition to place for name, date and time worked, this form contains place for company and doctor's telephone, number of tool kit assigned, name of direct supervisor and general instruction.

E. *General Procedure:* Contains detailed instructions as to procedure. To estimate the number of men needed for shut-off, the figure of 20 meters per man-hour is used for night operations and 30 meters per man-hour for day work. Turn-ons are estimated to take twice as many men for the same time.

F. *Shut-off Procedure:* After turn-off a single line is drawn on curb box or meter top to indicate emergency crew shut-off. A circle is drawn if meter is found shut off. If time permits pilots are shut off, too.

G. *Turn-on Procedure:* Find meter and look for line, passing up those marked with circles. Check with customer and turn off all appliances and pilot lights except range pilots. Check test hand. If tight, purge house line and light pilots and burners. If customer is not home, insert safety plug and place tag on door.

The Southern Counties Gas Co. has also organized an Air Raid Preparation Committee, consisting of a chairman, a coordinator, a chief of plant

London Letter →

IN answer to a cabled query from Davis M. DeBard, vice president of Stone & Webster Service Corp., New York, Michael Milne-Watson of The London Regional Gas Centre wrote:

" . . . I am enclosing herewith a schedule showing the procedure which takes place after the fall of a bomb to the various actions taken by the gas company to remedy the damage. It should, however, be emphasized that during the night no temporary or permanent repairs are made to gas mains owing to (a) the black-out and (b) the intensity of the bombing. In other words, night repairs are "first aid" repairs in order to stop the escape of gas and the continuance of the fire, if any.

"Repair work proper begins at dawn and for this some form of organization is necessary to see that as many men as possible come in at daylight in order to start work. Our experience is that at such times the men are capable of very long stretches of work without relief.

"To much emphasis cannot be laid upon the importance of providing mobile water pumps. These should be standing by with special teams of men ready to start pumping at the earliest possible moment as the flooding of the distribution system from broken water mains is one of the most serious effects of bombing. Much can be done beforehand by the installation of suck pipes at low points in the distribution system.

"I am not dealing with the extent of damage which we have suffered nor the precautions which are taken at our manufacturing stations as postal censorship would make this impossible."

A London Gas Company's System for Dealing With Bomb Damage on the District

This company's area covers 280 square miles, operated as five self-contained divisions, with 55 separate local authorities.

Order of Operations	*Notes on Operations*
1. The bomb falls, the Local Warden sums up the damage and reports to his Post Warden. The Post Warden phones the Local Authority Control.	The Gas Undertakings form a dependent service of the National Civil Defense organization, since they rely upon the local authorities, the Fire Service and the police for information that damage has occurred to gas mains and supply pipes.
2. The Local Authority Control telephones the various services, including the Gas Undertaking. No technical details of the damage are given.	The information which is sent to the Gas Company is received from the Air Raid Warden, who is not a technical man or woman, and whose primary duty is the saving of life and the prevention of large fires. In consequence the message frequently amounts to no more than a request that a Gas Company repair party be sent, no information being given as to whether the party is needed to attend to broken mains or supply pipes. For trapped casualties, or fire, priority attention is sometimes requested.
3. The Gas Company Report Officer for the area concerned, who works at the Divisional Control of the company, takes down the message. He hands it to the plotting officer who plots position on a map of the mains, showing size of main at the spot.	The report is taken down on a four-part form made up with interleaved carbons. This form becomes the job ticket for the repair party, and one copy is filed as the permanent record of the job. The plotting of each bomb is done on the mains map with a special red pin having a cork insert in the head. Into these "bomb" pins can be stuck other colored pins to indicate the progress of the work, until the permanent repair has been completed and the pins are removed.
4. The Gas Company Divisional Operations Officer takes the report and consults the map. He sums up the probable damage and sends for the leader of one of the light repair parties.	The Divisional Operations Officer is guided in his decisions by the nature of the report which is received from the authorities, but where trunk mains are involved he gets confirmatory evidence from the fall in the pressure of the gas. He will give priority of attention to the jobs where casualties or fire are reported, otherwise he will send his parties first of all to the incidents which have occurred in streets where there are large mains. Unless he has reason to think that damage has, without doubt, been done to a main, he will always send a light party, in order to avoid possible dissipation of his restricted resources of heavy parties on incidents of minor importance. (Where damage is known for certain to affect a main, operations 4, 5, 6, and 7 are omitted, in so far as they concern light parties, unless valve operation is necessary.)
5. The Divisional Operations Officer tells the leader of the light party what damage is suspected. If the operation of valves in the mains is necessary, he gives the leader of the light party details of these.	The leader of the light party is given full particulars of possible damage, *i. e.*, "There is a 6-in. main in the roadway. We do not know if it is broken," or "On the north side there is a 24-in. on the south side there is a 4-in. See whether either or both are involved. If the 24-in. is broken, close valves 16184 and 16192. If house property only is involved, do what you can, and then report back." Instructions such as these tell the leader of the party what to look out for. The speedy arrival of the light party, even when the job turns out to be more than they can handle without help, has been found to be very important in preserving public morale, for their presence makes the public feel that something is being done. The leader of the party must always inform the local authority's "Incident Offices" as soon as the party arrives and should keep him informed of the progress of the work. When all the light parties in any division are in use, an appeal for assistance from neighboring divisions can be made to the Company's Headquarters Control.
6. The light party goes to the scene of the incident in a car, in which are tools, clay plugs and valve keys. If they have been so instructed, they close the valves. They inspect the damage, and if the incident is a minor one, they deal with it.	In a mains system with a complete valving scheme the light parties can cut off the gas from the affected area and no heavy repairs are necessary until the permanent repairs are put in hand after the raid. If valves are not available, the light party must cut off all supplies to damaged property. If the main cocks cannot be reached, or if the services are broken, clay or plugs must be used to stop the services. The light parties should not waste time by attempting work beyond the capacity of their equipment, but the leader should immediately make a detailed survey of the job.
7. The leader of the light party reports back to the Operations Officer, using the Warden's post phone or in person, giving details of work done, a technical report of damage.	All reports should give all the relevant technical details. For example, if there are several mains in one street, the report should state specifically which main or mains are damaged, whether each is broken or cracked, if there is debris in the crater, if broken water mains are likely to cause flooding. Also indications should be given if the use of road breakers is necessary.
8. If it is a large job, the service of a heavy repair party is necessary. These parties travel in lorries converted into mobile work shops. They work from sub-stations throughout the area. The Operations Officer instructs the nearest sub-station by phone to send a party.	The heavy repair parties must be fully equipped to do any work necessary on mains up to 12-in. in diameter. Owing to the relative slowness of their vehicles they are kept at sub-stations spread over the area, and instructions to the foremen are given by the Operations Officer over private telephone lines from the Divisional Control. Each party consists of four men with a mobile repair shop. To each two parties there is a compressor and roadbreakers. Large parties are held by the Divisional Control for mains above 12-in. in diameter, the number and composition of these parties being determined by the number of important mains in the division.
9. The heavy repair party goes to the job, taking if necessary a compressor and roadbreakers. They work at the incident until the flow of gas is stopped and the damage temporarily secured.	The heavy repair party remains on the job until all affected mains are cut off. If additional plant or resources are required, these can be obtained by reference to the Divisional Control. Heavy repair parties can be obtained from neighboring divisions by appeal to the Company's Headquarters Control, if any one division is hard pressed. If the major portion of the company's resources are in use, an appeal can be made to the Control of the Regional Gas Center for help from other companies.
10. After the all-clear, the Operations Officer takes stock of the situation, and the program of permanent repairs is drawn up. These repairs are done by day, the Gas Undertaking cooperating with the other Authorities.	Arrangements have to be made to pump water from flooded mains with the minimum delay, and this requires a comprehensive pumping scheme. Pumps must be rushed to low points of the affected area immediately and the water removed before it spreads. Each division must keep the Company's Headquarters Control advised of the position, and the program of permanent repairs will be determined by the requirements of the company as a whole. The guiding role is that gas must be restored to all areas as soon as possible. It is not enough to restore supply to the factories, if the factory workers are unable to get hot meals at home. The Company's Headquarters Control of the Regional Gas Center, in their turn inform the Local Authorities if a temporary interruption of supply demands the organization of communal feeding. The key to the success of the whole organization is well-trained repair parties, reliable transport and adequate communications.

protection and a chief of emergency repairs. The coordinator is responsible for personnel assignments and clears all bulletins to prevent overlap of instructions. The chief of plant protection provides trained crews to guard against sabotage and fires, and is the contact man with military, naval and civil authorities. The duties of the repair chief are indicated by the title which he bears.

San Diego, Calif.: Although soldiers with bayonets drawn patrol major facilities of the San Diego Gas & Electric Co. as part of the Army's defense measures in and around the strategic area of San Diego, the utility is by no means relying entirely on Uncle Sam to protect it.

Planned before the war's outbreak, a guard system was immediately placed in effect with the Japanese attack on Pearl Harbor. Doors and gates of plant structures to which the general public might previously have had access were locked, and the armed guard force, consisting mainly of former military personnel, was trebled.

Identification badges had been issued employees prior to the actual hostilities, and no worker was allowed on the job without these. Visitors on official business are required to sign a register on arrival and to check out on departure.

With soldiers patrolling outidse, the plant's own guard force today watches all vital equipment inside against possibility of sabotage, reports D. H. Perkins, superintendent of the gas department.

Experiments are under way continually to determine the most effective means of extinguishing fires caused by bomb-shattered mains.

An adaptation of a device used in England has been developed by George Day, supervisor in the gas distribution department, to enable repairmen working from the sides of bomb craters to plug broken mains and stop the flow of gas.

It consists of two discs of pliable material, such as sheet gum rubber or canvas belting spaced about one pipe diameter apart on a shaft attached to a long, pliable pipe handle. The plug can be inserted into the broken main if it is free of rubbish and debris, and can extinguish a blaze if withdrawn a short distance with a jerking motion, causing a temporary interruption of the flow of gas, according to Mr. Perkins.

Such a method is of value in low pressure mains. The gas flow of high pressure transmission mains will, of course, be controlled by valves along the line.

The concern is experimenting with the use of high pressure grease pumps to build up a plug of grease or mud in the damaged distribution mains.

All essential buildings used in 24-hour operations have been blacked out by painting windows. and by plywood and sisalkraft installations. Company officials still are studying what permanent measures are to be taken to protect buildings, equipment and personnel from shrapnel damage and injuries. Alternatives are installation of sandbags, steel screens, or heavy timbers, with limitation on securing materials a primary factor governing choice.

Stirrup pumps have been acquired for use against incendiary bombs in event of low water pressure; buckets of sand, barrels and cans of water, long handle shovels, rakes and axes have been placed in strategic positions to combat fires, and trained anti-incendiary squads have been organized from among the employees.

The public is being educated to the fact that in case of a gas main break, it is safer to allow the fuel to burn than to permit it to accumulate in buildings in such a manner that might cause a disastrous explosion.

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Operating Data

Guards: Utility companies throughout the country have either delegated certain employees to act as armed guards at strategic points, or have called upon local police authorities to furnish them with lists of men who may be employed as guards.

Southern Counties Gas Co. has equipped its guard posts with telephones which are used to report to sheriff or police headquarters each hour. Each guard is given more than one number to call, in case of failure to answer; and if no call is received from him or if his call is more than five minutes late, an investigation is made. The company has given instructions to guards on how to care for and handle guns, and what to say to the public. Some of this information has been passed on to all employees.

Paint: Pacific Lighting Corp., San Francisco, Calif., and the Las Vegas (Nevada) Gas Co., are planning to repaint all aluminum painted structures an olive drab. Pacific Gas and Electric Co., San Francisco, Calif., is experimenting with a neutral brown priming paint which can be obtained at about $1 a gallon and also with an oil dip for lifts.

Employee Identification: All Pacific Coast companies have, or are preparing, badges and passes for the identification of employees. Most of these are of the sealed in, non-forgible type, including description, photograph and fingerprint.

Public Utility Trucks: These will be an important factor in the defense program, and Interstate Commerce Commissioner John L. Rogers is heading up the Central Motor Transportation Committee, a part of the Transportation Division of the Advisory Commission to the Council of National Defense. The Motor Committee will formulate and execute plans for the efficient and economical use of highways and commercial vehicles.

Chairman Rogers has established 16 regional committees to facilitate the work of the Central Motor Transportation Committee, and the utility representatives of the 16 districts are as follows:

1. J. A. Herlihy, Edison Electric Light Co., Boston, Mass.
2. R. H. Clark, Consolidated Edison, Inc., New York, N. Y.
3. Lynn Edsall, Philadelphia Electric Co., Philadelphia, Pa.
4. S. G. Page, Philadelphia Co., Pittsburgh, Pa.
5. Jean Y. Ray, Virginia Electric & Power Co., Richmond, Va.
6. R. Whitfield, Georgia Power Co., Atlanta, Ga.
7. F. B. Penick, Southern Bell Telephone and Telegraph Co., Nashville, Tenn.
8. G. D. Gilbert, Illinois Bell Telephone Co., Chicago, Ill.
9. G. E. Loughland, Northern States Power Co., Minneapolis. Minn.
10. R. J. Collins, Kansas City Power & Light Co., Kansas City, Mo.
11. S. M. Sharp, Southwestern Gas & Electric Co., Shreveport, La.
12. Ben Smith, Southwestern Bell Telephone Co., San Antonio, Texas.
13. F. T. Parks, Public Service Co., Denver, Colo.
14. B. A. Barickman, Mountain States Telephone and Telegraph Co., Billings, Mont.
15. G. H. Keiburtz, Puget Sound Power & Light Co., Seattle, Wash.
16. P. H. Ducker, Southern California Edison Co., Los Angeles, Calif.

Utility motor transportation officials throughout the United States will be requested to contact their regional representatives who will exchange information on all forms of motor transportation shortages, congestions, delays in shipments, scarcity of parts and the effect of priorities affecting production of trucks, busses and their repair parts. The War Department has also urged this committee to facilitate the completion of the recent Bus and Truck Census.

Employee Mobilization: Brooklyn (N. Y.) Union Gas Co. is giving those of its employees who have volunteered for service in the defense corps identification cards and arm bands. They will be furnished with booklets instructing them on what to do in an

emergency and also with maps giving the location of company properties and important mains and valves.

10,000 Breaks: Wilfred H. Weber, assistant engineer of distribution, Brooklyn Union Gas Co., in reviewing a paper reporting the experiences of an observer in England, Frank M. Roessing, director of public works in Pittsburgh, revealed that there had been more than 10,000 breaks in gas mains in England in the past year but that in spite of this enormous number gas service was being maintained. One gas plant that had suffered three hits by bombs in one raid, was operating again in 48 hours.

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Rubber Conservation

San Diego, Calif.: The San Diego Gas and Electric Co. has taken definite steps to conserve rubber in all its forms, according to a letter received from D. H. Perkins, superintendent, Gas Department. The steps:

Customers will be advised through suitable publicity, gotten out by F. M. Raymond, advertising manager, of the need for conserving rubber. This publicity will point out that although customers will not be seriously inconvenienced, they cannot expect the same quick response to requests for service as has been past practice. Orders for turn-ons, new meter installations, requests for appliance adjustments, etc., will be held longer in order to accumulate a number in each district and thus save "rubber miles." The company will continue to connect gas ranges for our customers if these are in place at the time men call to turn on or install meters, provided additional help is not required to move them into position. Second trips for connecting ranges or the sending of additional men to help the man on the job will be discontinued.

Customers will not receive turn-on service in any regular business day unless they place their orders before 3:00 p. m., and orders received between 12 noon and 3:00 p. m. will not be executed that day unless specifically requested by the customers. Orders for this service received after 12 o'clock noon on Saturdays will not be executed until Monday of the following week and no turn-on meter installation orders will be received or executed on Sundays or holidays. Meters shut off for nonpayment of bills will be turned on the day the bill is paid provided this is done before 3:00 p. m.

It will be suggested to the owners and managers of apartment houses that they keep all of their meters turned on and notify us of changes in accounts. District managers in suburban districts where there is a large turnover in accounts such as the beach towns will advise owners of rental property and real estate agents of the change in our service on turn-ons and where they desire quick service in rental property that the owners or agents have the meters left on in their names and assume the responsibility of the bills.

It is proposed to establish additional headquarters for construction and maintenance crews in outlying sections of the territory to avoid long trips by such crews and trucks to and from their jobs.

Insofar as possible all trench work is closed up at night to avoid any more than the necessary number of lanterns in case of blackouts and particularly on the days immediately preceding week ends or holidays. Where it is necessary to place lanterns over week ends or holidays, these will be of the type with large kerosene bowls with the rated burning time of 72 hours. This will obviate the necessity of men making special trips on Saturdays, Sundays and holidays to refill the bowls. Lighted lanterns left on trenches at night are fitted with blackout hoods.

The tamping of trenches with truck wheels has been discontinued to avoid possible damage to the tires. Devices will be provided crews for protecting air, water and welding hose, and to prevent traffic from running over it.

Group meetings are being held with men in the several classifications to advise them of the necessity for conserving rubber and to be particularly careful in the use and care of equipment and tools made of rubber. Particular items are gas main bags, the rubber expanding plugs used for shutting off the gas when tapping mains or changing stop-cocks and sheet rubber for leak repair clamps. Any special articles of rubber which are no longer useable will be salvaged for possible use otherwise.

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Defense Motion Pictures

Motion Picture Shows How to Fight Incendiary Bombs: The first film authorized for training purposes by the Office of Civilian Defense, entitled "Fighting the Fire Bomb," is now being distributed throughout the United States. It is accompanied by an instruction manual containing supplementary lectures, material for a quiz based on the film, and other instructional material. The film and manual constitute official training material approved by the Training Section of the Office of Civilian Defense.

The film was produced by Transfilm, Inc., of New York City, under the technical supervision of the Chemical Warfare Service and the National Fire Protection Association. The Instructor's Manual was produced by Safety Research Institute, also of New York City.

The scenes of the film are laid in a home — anybody's home — and they show the steps to be taken in preparing for attack by incendiary bombs, as well as the methods of disposing of the light magnesium bomb.

The film illustrates how a solid stream of water, applied to the bomb itself, causes a dangerously violent reaction, but how a water spray does not.

Copies of the film are being made available to state and local defense councils by the Office of Civilian Defense. Prints of the film and copies of the Manual may be purchased from Transfilm, Inc., 9 Rockefeller Plaza, New York City.

British Film: At Gas Industry House last week a preview was given of the new gas film, which is called "Eating at Work" and deals with the working of a canteen in a modern factory. It was judged by the audience to be one of the best of the 22 films which are now on the B. C. G. A. list.

It is understood that none of the material was specially staged.

Shots were taken of the girls actually signing on for war work at a Labour Exchange. In the factory the men were filmed at work and at their meals, the cooks preparing food in the kitchen, the canteen manageress giving her orders to the trades people and planning her menus. The closing scenes of the film were shots of a concert in progress in the works canteen before an audience of about 500 workpeople, and of one of the monthly dances for workers and their friends held in the factory. — *The Gas Times*, November 15, 1941.

Home Service

Los Angeles, Calif.: Response to the program of nutrition and canteen aid classes offered in January by Southern California Gas Co.'s home service department, acting in cooperation with local chapters of the American Red Cross, has exceeded all expectations, according to Gladys Price, home service supervisor. The original schedule of classes has had to be expanded several times in order to accommodate the numbers wishing to take the course. At this writing, 14 classes are being held weekly in auditoriums of the company in Los Angeles and vicinity. Enrollment in these classes averages 150, and the home service department has eight members assigned to instruction.

Plant Protection

THE Office of Civilian Defense has established a section under Rear Admiral C. H. Woodward for the purpose of advising industrial organizations on "Plant Protection." This section, which is working in close unison with the Army, Navy, F.B.I., and other interested government agencies, is using a broader definition of "Plant Protection" than has heretofore been used, in that, in addition to the usual "Security Measures" it includes "Passive Defense Measures." This has been defined as the measures necessary to minimize the effect of damage resulting from enemy action. In other words, it is the controlling and restricting of damage to plants and personel in the event of an air raid, sabotage, or other emergency.

It is the studied opinion of experts that every industrial organization within 300 miles of our coast lines—or within any industrial area—should prepare now for any eventuality, and that each industrial organization should be prepared to protect itself without any aid from the surrounding municipalities, unless absolutely necessary. The Office of Civilian Defense is located in the DuPont Circle Building, 1314 Connecticut Avenue, Washington, D. C.

Some publications on the subject of plant protection are:

Protecting Industrial Plants—J. Edgar Hoover, Director, Federal Bureau of Investigation, U. S. Dept. of Justice, *A. G. A. E. M. Bulletin*, October, 1941, pp. 5-8. Discusses plant surveys by F. B. I. agents, the importance of illumination, loyal personnel, precaution of plant visitors, the guard system, etc. Article first appeared in the October, 1941 issue of *Manufacturers Record*.

Protection of Industrial Plants and Public Buildings—U. S. Office of Civilian Defense, Washington, D. C. Issued by F. H. LaGuardia, U. S. Director of Civilian Defense to assist executives of public and private undertakings in the protection of personnel and physical plants under their jurisdiction. Contains industrial plant and building protection chart in combination with organization chart. Topics discussed in the booklet are: General Considerations; Protective Organization; Fire Services; Police Services; Medical Services; Maintenance Services; Lists of Equipment; Duties of Squad and the Utility Control Squad.

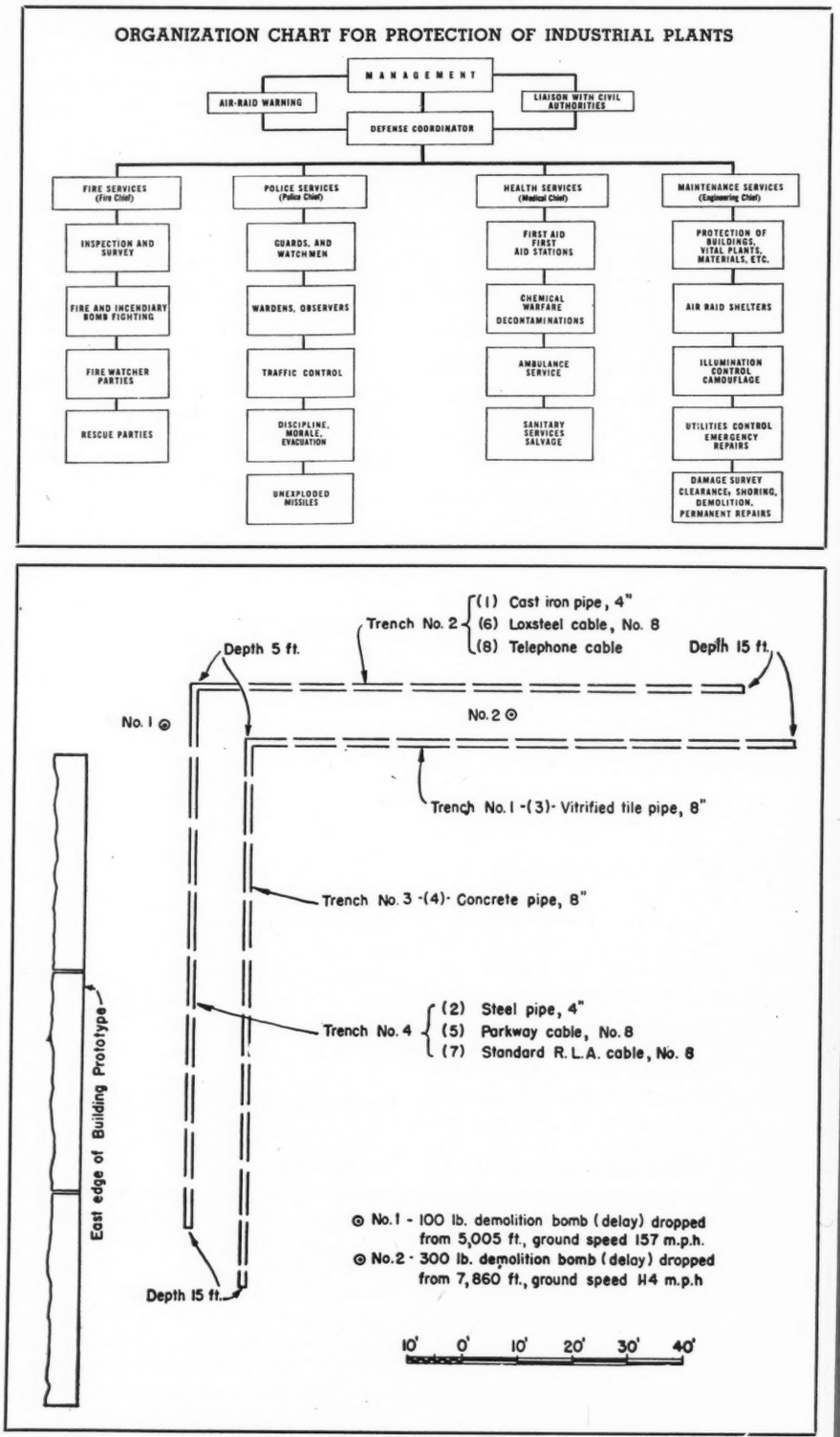
Report of Bomb Tests on Materials and Structures, a booklet prepared by the War Department under the direction of the Chief of Engineers, United States Army, and issued by the Office of Civilian Defense in Washington, D. C. Plate No. 13, published on page 21 in the booklet, shows a plan and layout of bomb tests on utilities. (See Fig. A.)

The effect of two bombs dropped on this plan and layout is discussed on pages 48 and 49 of the booklet.

Bomb No. 1: This was a 100-lb. type M-30 bomb, bursting after 0.1 second delay, and dropped from an altitude of 5005 ft. from a bomber traveling at a ground speed of 157 miles per hour.

Remarks: The first joint of the 4-in. steel pipe (2) was pulled apart and the first length of pipe was bent. The pipe was recoupled and when pressure was applied no other breaks were found. No damage other than slight bending was observed for the parkway cable (5) and the standard R.L.A. cable (7).

Bomb No. 2: A 300-lb. type M-31 bomb which exploded after 0.1 second delay after being dropped from an altitude of 7860 ft. from a bomber with a ground speed of 114 miles per hour.



Trench No. 2
(1) Cast iron pipe, 4"
(6) Loxsteel cable, No. 8
(8) Telephone cable
Depth 5 ft.
Depth 15 ft.
No. 1
No. 2
Trench No. 1 -(3)- Vitrified tile pipe, 8"
Trench No. 3 -(4)- Concrete pipe, 8"
Trench No. 4
(2) Steel pipe, 4"
(5) Parkway cable, No. 8
(7) Standard R. L. A. cable, No. 8
East edge of Building Prototype
Depth 15 ft.
No. 1 - 100 lb. demolition bomb (delay) dropped from 5,005 ft., ground speed 157 m.p.h.
No. 2 - 300 lb. demolition bomb (delay) dropped from 7,860 ft., ground speed 114 m.p.h
10' 0' 10' 20' 30' 40'

FIG. 1. Diagram of plan and layout of bomb tests on utilities published in the booklet, "Report of Bomb Tests on Materials and Structures," prepared by the chief of engineers, United States Army, and issued by the U. S. Office of Civilian Defense, Washington, D. C.

Remarks: An 8-ft. section of Loxsteel cable (6) was broken and damaged although the armor covering remained intact. At four points the lead sheath, wrapping, and copper wires were broken. No other breaks were found. One end of the telephone cable (8) was found to have a very sharp break and the conduit completely shattered in the vicinity of the crater. The other end of the telephone cable could not be located.

The Specter of Sabotage—Blayney F. Matthews, Former Special Agent, F. B. I., now Director of Plant Protection, Warner Bros. Pictures, Inc., West Coast Studios. Chapter headings: The Specter of Sabotage; The Invisible Army; The Saboteur's Bag of Tricks; Serpents in Our Industrial Bosom; Menace from Mines to Military; Rubber—Our "Archilles Heel;" The Sab Cat Prowls Our Forests; The Peril to Petroleum; The Government Looks Ahead; Let the Agriculturist Beware!; The Threat to Transportation, Communications and Utilities; Violence from the Skies; Sabotage by Arson and Explosives; Personnel; Safeguards — Exterior and Interior; Police Administration; Fire Administration; Suggested Employment Questionnaire; Industries Vulnerable to Sabotage. Price: $3.00, 256 pages, published by Lymanhouse, Los Angeles, Calif.

Suggestions for Protection of Industrial Facilities—Federal Bureau of Investigation, United States Department of Justice, Washington, D. C. (December, 1941). This 54-page book, which J. Edgar Hoover, Director, F.B.I., states will be forwarded to industrial concerns upon request, contains an industrial plant and building protection chart and suggestions on many problems of plant protection some of which are discussed under chapters headed: Methods of Sabotage: Industrial Information Sought By Espionage Agents; Methods of Espionage; Vulnerable Points; Hazards; Personnel; Physical Properties To Be Considered During a Survey; Confidential Documents; Identification Systems; Guard Force; Fire Prevention; Handling of Bombs and Explosives and Precautions for Air Raids and for Other Wartime Emergencies.

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Bureau of Mines Issues Report on Fuel and Power

The U. S. Bureau of Mines, Department of the Interior, has issued an Information Circular (I. C. 7189) on Coal, Petroleum, Natural Gas, and Electricity in the United States, 1929-40, by John R. Bradley, Coal Economics Division, Bureau of Mines. Purpose of the study is to estimate the available supply of fuel and power in the United States, the approximate monthly demand, the chief centers of production and consumption, and shifts in the principal uses from 1929 to recent years.

The report states that the production of natural gas increased from 1,917,693,000,000 cu. ft. in 1929 to 2,476,756,000,000 cu. ft. in 1939, or 29.2%. Consumption of natural gas during those years increased from 1,917,451,000,000 to 2,473,765,000,000.

In these years Texas supplied 24.2% and 39.5%; Oklahoma, 18.7% and 10.1%; California, 17.8% and 14.1%; and Louisiana, 13.6% and 11.9%. These four states accounted for 74.3% and 75.6% of the yearly totals. Consumption of natural gas in these states, including receipts from other states, represented 69.8% of total consumption in 1929 and 62.3% in 1939, broken down as follows: Texas, 24.3% and 32.2%; California, 17.8% and 14.1%; Oklahoma, 17.2% and 9.3%; and Louisiana, 10.5% and 6.7%.

New Products for Plant Protection

Blackout Paint: A new type of low visibility paint, possessing exceptional heat deflecting qualities, has been developed by The Arco Co., Cleveland, for use in the protective concealment of vital defense structures and equipment

The unusual degree of heat deflections which can be obtained with the darker colors in these paints promises to be of particular value to public utilities, oil producers and refineries, and to anyone who has to store large quantities of volatile materials in tankage above ground.

Already in use on certain Government properties, the new paint meets tentative Navy specifications for infra-red reflecting paints for use on fuel storage tanks, buildings, and certain types of equipment where dark colors as well as heat reflecting qualities are required.

It has just been offered commercially under the trade name of "INFRAY" and is being manufactured in green, tan, black and four intermediate shades which, when properly selected, will meet the requirements of good camouflage in any sort of terrain. All seven shades are hard to see from the air and throw off most of the heat of the sun's rays which would be absorbed in normal conditions.

Blackout Paint: The American-Marietta Co., 43 E. Ohio St., Chicago, is now producing a blackout paint, termed Valdura Black-Out, for use in darkening windows and skylights of industrial and commercial properties where it would be impractical to extinguish lights at the sound of an air raid warning. Final tests of the paint were speeded with the Japanese attack on United States possessions in the Pacific, and commercial production started 10 days later.

The paint is being marketed in paste form, and, when cut 50% with water, can be sprayed or brushed on windows to prevent all passage of light. Coverage is 800 sq. ft. to the gallon. It dries within 40 minutes, providing a flat surface that will not flash back or glare when hit by artificial light used within the room. In interior applications, a single coat may be covered with a white paint where large surfaces makes the higher reflection properties of a white surface necessary.

Removal of the product, is made without damage to the glass. It is being packed in 1- and 5-gal. containers.

Seeing in the Blackout: The Conti-Glo Division of the Continental Lithograph Corp., Cleveland, Ohio, has announced Conti-Glo P-10, a phosphorescent lighting sheet designed to aid civilians and armed forces to see in the blackout.

Conti-Glo P-10 is a flexible "glow-sheet," an emergency light source, complete in itself, which is sold by the yard in the form of rolls. Its surface is a near white, smooth in finish, and easily washed. It is backed with a high-grade, closely woven fabric, strongly resistant to tearing, and is easily cut by knife, scissors or razor blade into any desired shape or symbol.

Conti-Glo P-10 is readily activated to luminescence by exposure to daylight, black light, or intense artificial light from incandescent lamps, the new type fluorescent tubular lamps, or mercury vapor lamps. If the product is exposed, for example, for some minutes to strong sunlight, and is then taken into a darkened room, its initial brightness light emission drops off rapidly in intensity of light emission or "afterglow" is high. This light emission drops off rapidly in intensity for the first few minutes following such activation and then gradually levels off, retaining a very useful degree of brightness for many hours.

Fluorescent Products: Conti-Glo Division of Continental Lithograph Corp., Cleveland, Ohio, has developed the production by high-speed printing methods of fluorescent dials, instrument panels, maps, charts, manuals, tables, and other matter required to be read in the blackout. Black light hand lamps for activating such printed matter to luminescence in darkness were likewise developed and made available. All of these products were described in the last issue of the Defense Section of the company publication, *Black Light Beacon*, and they are sampled and described in detail in the booklet, "Fluorescent Printed Matter Permits Reading in Blackout," a copy of which is available upon request to anyone officially engaged in defense planning or operation.

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O. P. M. Sets Up National Industrial Salvage Program

THE Office of Production Management has set up an Industrial Salvage Section charged with the responsibility of developing salvage programs for waste materials, particularly iron and steel scrap, non-ferrous metals, paper and rubber.

The Chief of the Industrial Salvage Section, George T. Weymouth, has called for the active assistance of the members of the gas industry in the essential and pressing task of placing this waste material at the disposal of all of the agencies and industries engaged for the national emergency. Each gas company is asked to charge a responsible individual with the duty of surveying all bulk material not now in use nor at present needed, and of selling and delivering it to the nearest junk dealer at the earliest possible moment.

The American Gas Association will act as a clearing house for its members by putting material or equipment, unneeded by one utility into service elsewhere in the industry, thereby avoiding unnecessary manufacture and thus hampering defense production by using priority assistance to obtain these articles directly from the producer. It is important that the Association be immediately advised of the existence of these materials and reports should be made direct to Association Headquarters, 420 Lexington Avenue, New York, N. Y.

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A. G. A. Issues Bulletin on "Home Service Volunteers"

The American Gas Association has issued a new bulletin, "Home Service Volunteers," which is a report on the activities of home service departments of the gas industry in the National Nutrition Program.

The report, sponsored by the Home Service Committee, is based on the returns of a three-part questionnaire mailed to home service departments late in September, 1941.

Chapter headings of the 24-page booklet are: Community Activities; Food and Nutrition; Window Displays Feature Nutrition for Defense; News Notes; Home Service in Britain, and Reference Material. Extra copies of the bulletin are available from the American Gas Association, 420 Lexington Ave., New York, N. Y., at 15¢ each.

Books and Publications for Defense

ON THIS page are presented brief resumes of books and pamphlets on defense topics that are now available to the gas utility industry.

General Bibliographies

The British Library of Information: A selected list of British Official Publications on the subject of Civil Defense has been issued by The British Library of Information, 30 Rockefeller Plaza, New York, N. Y. Prices of these publications, which may be ordered in the U. S. A. from the British Library, are given in dollars and cents.

The following publications were among more than 300 listed as available, Jan. 1, 1942:

Ministry of Health

B. L. I. Sales Dept. Code No. 39. 1848. Sept. 4, 1939. Repair of War Damage. Essential Building and Plant. (5¢).

Ministry of Home Office and Home Security

B. L. I. Sales Dept. Code No. 55. 01092/14. Cooperation between Local Authorities and the Occupiers of Industrial or Business Premises. (5¢).

B. L. I. Sales Dept. Code No. 115. Aids to the Movement of Traffic to be Installed in Roads and Streets in the Absence of Street Lighting. (34-9999). (5¢).

B. L. I. Sales Dept. Code No. 136. High Explosive Instructional Diagram. (1) H. E. Aircraft Bomb, 112 lbs. (34-271). (30¢).

B. L. I. Sales Dept. Code No. 137. Incendiary Bomb Instructional Diagrams. (1) Typical Kilo Magnesium (Electrom) Incendiary Bomb; (2) Typical Roof Construction. (34-282). (45¢).

Department of Scientific and Industrial Research

B. L. I. Sales Dept. Code No. 184. 2. The Application of Reinforced Concrete to War Time Building. (15¢).

B. L. I. Sales Dept. Code No. 192. 10. General Principles of Wartime Building. (30¢).

B. L. I. 193.1. 12. Emergency Pipe Repairs. (15¢).

The Office of Civilian Defense: The United States Office of Civilian Defense, in Washington, D. C., has prepared numerous publications which can be ordered through the State Defense Councils. Individual copies are for sale by the Superintendent of Documents, Government Building, Washington, D. C. The Civilian Defense pamphlets of particular interest to the technical man are: Municipal Signaling Systems; Bomb Tests on Materials and Structures; Protection Against Gas; Fire Protection; Glass and Glass Substitutes; First Aid in the Prevention and Treatment of Chemical Casualties; Protective Concealment (Jan. 1942.); and Simple Shelters (in preperation by War Department).

O. C. D. has also issued Training Guides for Instructors. These Training Guides are on the following subjects: The Five Course School; Air Raid Wardens; Auxiliary Police; Emergency Drivers; Fire Watchers; Messengers; Bomb Squads (in preparation); Rescue Squads; Volunteer Nurses' Aides; First Aid Course for Civilian Defense; Demolition and Clearance Crews; Road Repair Squads; Decontamination Squads; A Guide to Staff Training; and Inspections and Drills.

Handbooks, for individual issue to enrolled volunteers, are available on the following topics: Air Raid Wardens, Auxiliary Firemen; Auxiliary Police; First Aid; Rescue Squad Leaders; Decontamination Squads; Emergency Feeding and Housing Corps (in preparation); Messengers; Drivers, Bomb Squads (in preparation); Fire Watchers; Citizens' Defense Corps Staff Manual.

American Gas Association: A Bibliography on "National Defense and Air Raid Precautions for Public Utilities" was published in the July-August, 1941 issue of the American Gas Association Monthly on page 283 (Technical Section). The Bibliography, compiled by Luis Hilt, Librarian, A. G. A., with the assistance of Josephine I. Greenwood, Librarian, Consolidated Edison Co. of New York, Inc., and Alma C. Mitchell, Librarian, Public Service Electric & Gas Co. Many of the gas industry references listed in the bibliography are from British publications and were written while raids were taking place in England.

Another bibliography is being prepared by the A. G. A. Technical Section, which will deal with utilization and some of the more general matters relating to national defense not included within the scope of air raid precautions, according to Dort P. Hartson, chairman of the Section.

Superintendent of Documents, Washington, D. C.: A price list of government publications (documents, pamphlets and books) for sale covering the various phases of our national defense effort and other topics is being issued free by the Superintendent of Documents, Government Printing Office, Washington, D. C. The lists describe each available book or pamphlet and shows the state of stock at the present time.

A price list of publications on the following subjects is available, (list order number follows topic): Laws, (10); Army and Militia, (19); Maps, (53); Mines, (58); Alaska and Hawaii, (60); Navy, (63); Foreign Relations, (65), and Census, (70).

The rules of this office require that remittances be made in advance of shipment of publications, either by coupons, sold in sets of 20 for $1 and good until used, or by check or money order payable to the Superintendent of Documents. Currency may be sent at sender's risk. Foreign money, defaced or smooth coins are not acceptable. Do not send postage stamps.

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Miscellaneous Publications

Laws Relating to Espionage—Compiled by Elmer A. Lewis, Superintendent Document Room, House of Representatives, Washington, D. C. This booklet, in conjunction with the "Trading with the Enemy Act," comprise the statutes under which wartime censorship activities are conducted. Contains: Public No. 24, 65th Congress, approved, June 15, 1917, Espionage Act of 1917; Public No. 150, 65th Congress, approved, May 16, 1918, Amendment to Espionage Act of 1917; Public Res. 64 (Extract) 66th Congress, approved Mar. 3, 1921, To Repeal Espionage Act of 1917 as amended and to revive and restore the provisions of Sec. 3 of Act of 1917; Public No. 443, 76th Congress, approved Mar. 28, 1940, to amend Espionage Act of 1917, as amended to increase penalties for peacetime violations of such Act.

Fire Defense—The National Fire Protection Association of Boston, (Mass.) (60 Batterymarch St.), 323 pages, 154 illustrations, price: $1.50. Includes authoritative statements on various phases of the problem by specialists. Explains the problem of fire in war time, covering air-set fires, bombs, sabotage, the activities involved in civilian defense, fire fighting, and the safeguarding of industrial production for defense. Text includes a comprehensive report on British fire defense measures and also a review of the fundamental principles which must be observed to assure that fires, sabotage—caused or accidental, will not interrupt the flow of material off production lines.

Glass and Glass Substitutes—Protective Construction Series No. 1—United States Office of Civilian Defense, Washington, D. C. An 18-page booklet which describes the Effects of High Explosives on Glazing and Types of Protection. Under Types of Protection are sub-heads on (A) Protection Against Near Effects and (B) Protection Against Distant Effects. Topics discussed under these classifications are: General; Blocking Windows; Design and Lightweight Shutters under "Near Effects" and General; Windows; Roof Lights; Methods of Protection, and Obscuration under: "Distant Effects." Booklet was prepared under the direction of the Chief of Engineers, U. S. Army, with suggestions of the National Technological Civil Protection Committee. The booklet is for sale by the Superintendent of Documents, Washington, D. C., at 10¢ a copy.

Basic Standards for Air Raid Shelters (Air Raid Shelter Bulletin No. 1), was issued on September 15 by the Los Angeles County Defense Council, E. W. Biscailuz, chairman. This bulletin covers—(1) The necessity of air raid shelters; (2) designates who shall provide them; (3) recommends that they be reasonably comfortable; (4) discusses the types of shelters and the maximum distances that should be traveled in order to reach them; and (5) discusses shelters constructed both outside and inside buildings, giving the size required and notes on wall and roof construction.

It is quite probable that defense councils in counties throughout the country, particularly those in areas where enemy attack is most likely to occur, have issued similar bulletins.

Chemicals in War—Augustus M. Prentiss, Lt. Col., Chemical Warfare Service, U. S. Army. With chapters on protection of civil populations and international situations, by George J. B. Fisher, Major, Chemical Warfare Service, U. S. A. A comprehensive and authoritative work on the new art and science of chemical warfare, presenting the subject from scientific, military, and industrial viewpoints, and making available a clear picture of the means and methods of this instrument of warfare, its limitations and possibilities and its significance to the American public—Published by McGraw-Hill Book Co., Inc., New York, N. Y., and London, England, 1937.

Chemical Warfare—Curt Wachtel; Chemical Publishing Co., Brooklyn, N. Y. Chapter Headings:—(1) The Idea of Chemical Warfare; (2) The Men Behind the Gas; (3) Psychological, Social & Economic Aspects; (4) How to Develop a New Gas; (5) The Evaluation of Gases; (6) Toxity Figures and Standards; (7) Irritant Poisons. (8) Arsenic Compounds; (9) Sulfur Compounds; (10) Cyanogen Group; (11) Explosive Gases and Fumes, and (12) Treatment and Protection.

Air Raid Precautions for Gas Utilities

By ROY J. BENNIE, M.C.E., M.Mech.E.

Research Engineer, Metropolitan Gas Company, Melbourne, Australia*

THIS paper surveys air raid precautions by which gas utilities may cope with conditions similar to those experienced in England. The cost of putting every one into effect would no doubt be very great and it must be left to the judgment of management, guided by the government, to decide which measures are most pressing and how much should be done at any stage of the war.

Penetration Power of the Bomb: This would occur if the bomb penetrated 5 ft. into the ground. Now what is the penetrating power of the bomb? The terminal velocity is usually between 600 and 700 ft. per second and the practical upper limit is 1200 when dropped from very high altitudes. Even at 400 ft. per second velocity a 500 lb. bomb with a charge weight ratio 40% would penetrate 20 ft. in sand or gravel, but only 2 ft. 6 in. into concrete. Of course, the subsequent explosion would make further penetration and cause damage below this point. But the deeper the initial penetration the steeper will be the angle of the cone of the crater, and the more confined the sides of the crater. There is not sufficient information available on this question. But the bomb operator is able to adjust the timing of the explosion so as to secure explosion at any desired moment and therefore after any desired penetration. It it fell on a gasholder tank it would shoot a quantity of the water out as well as wreck the holder bell.

The incendiary bomb contains a thermite mixture which cannot be quenched by water. It is customary to throw dry sand on the molten mass and then pick it up on a shovel and quickly throw it out of the building. An incendiary bomb could ignite a coal heap; but this is not a serious matter, for the total heat in the materials of the bomb is far less than that in the same mass of coal; if the fire is not allowed to get too much hold it can be quenched by water as soon as the thermite reaction has ceased. Additional hydrant capacity and a fire pumping system are called for.

The gas and noxious liquid bomb is more serious and requires equipment of respirators, gas masks, a decontamination apparatus with a specially trained staff, and, of course, gas proof air raid shelter.

Penetration: The distance through which the bomb will penetrate depends upon the velocity with which it falls; and this is greater with the height of drop, but depends on the class of bomb. For example, a small incendiary bomb dropping from 10,000 ft. would arrive with a velocity of about 400 ft. per second, while a 500 lb. medium case bomb would arrive at 750 ft. per second. On the other hand the velocity of the latter dropping from 1000 ft. would be less than 240 ft. per second.

Accuracy of Shots: Apparently this is very poor except when a machine is moving slowly at low elevation over its target. For this reason it is expedient to force the machines to remain at high elevations and to keep them moving at high speed. This is the intention of the balloon barrage and anti-aircraft guns. Most anti-aircraft guns cannot prevent aircraft from coming over and dropping bombs; but they can lessen the accuracy of their shots.

Nature of the Explosion: Two phenomena occur—(a) Around the bomb is a sphere of expanding gas which produces its effects by the pressure exerted against obstacles and by the very high temperatures generated by the extreme pressures, and (b) the outer zone of "blast." Blast is really an air wave; no translation of air takes place, only sufficient movement occurs to transmit outwards a pressure wave which is immediately followed by a suction wave, and then by minor oscillations until the wave is finally damped out.

Gas Mains: Overhead gas mains are extremely liable to damage from flying scraps; and the only precautions that can be adopted regarding these, and the condensers, washers and purifiers is to install quick-closing valves, emergency seals, or gas bag holes such as those used in Birmingham. *(Vide Gas Journal* 6/11/38, p. 560.) These should be installed away from the plant concerned so that the site would not be too hot to operate them. I do not consider gas bags as satisfactory as valves or water seals; for, the leakage past them, when used in dirty gas works mains, might be sufficient to keep a large flame burning. When a gas main or other part of the plant is fractured, the nearest valve or seal should be operated without hesitation. An open gas main burning at the mouth will not be liable to internal explosion if the gas supply is suddenly cut off a hundred feet away; for the gas will burn back into the pipe until finally smothered by the carbon dioxide formed by its combustion. Therefore, the sudden sealing of a fractured pipe at a point remote from the fracture will be quite a safe procedure.

Gas Holders at the Works should carry minimum stocks of gas. There is no risk of explosion, but a strong wind might blow the flames from a wrecked holder around the surrounding plant or damage the neighborhood. A large bomb falling within the tank might broach it if above ground, and there would be a gush of water that might submerge temporarily some of the plant. But the direction of the wave can be deflected by sand bag dams and appropriate channels dug to lead away the water. The power house should be specially protected from this wave which should be prevented from entering the building.

Fire Fighting: Additional fire fight-

SUMMARY OF DATA

(a) We may expect accurately aimed bombs if no anti-aircraft guns are available.

(b) But if enemy aircraft are constrained to fly high by fear of guns of chasers, we may expect chance hits within the works.

(c) The weight of the bomb may be upwards of 1000 lbs. gross (500 lbs. of explosive) but more probably the largest would be 500 lbs. containing not more than a 300 lbs. charge.

(d) Warnings of only 10 to 20 minutes can be expected.

(e) There is no way of protecting our plant from a direct hit, for the penetrating power is too great. A first-class air shelter comprises a top layer of concrete 4 ft. thick followed by 20 ft. of earth and a second 4 ft. thick layer of concrete.

(f) We can only endeavor to protect our plant and ourselves from the effects of splinters and missiles thrown out of the crater, and from the shock effects of blasts, and from incendiary bombs.

(g) We must provide air raid shelters sufficiently strong to protect our men from splinters and fragments hurled about; from the shock of the blast, and from noxious gases.

*Excerpts from a paper presented before the 1941 meeting of the Southern Section of the Australian Gas Institute. This paper was published in the July, 1941, issue of the *Australian National Gas Bulletin*.

ing mains with gas or oil driven pumps may be installed to draw water from a nearby stream or from a gas holder tank. This is important, for if the city has been bombed, the water mains supplying the gas works, may have been fractured or the water may be all required for putting out the city fires. Local fire brigade officers should be consulted on this question and on the organization and training of fire-fighting squads to be capable of operating independently when the fire brigade is fully occupied elsewhere.

Damage to Mains

Nature of Damage: If a bomb drops in the street and blows a crater, the size of this depends upon the size of the bomb and the strength of the road; but generally the crater would be not less than one-third of the width of the street, larger in macadam and possibly smaller in concrete. The depth would be probably at least 5 ft.; my notes on Penetration show what is possible. In these circumstances, cables, water and gas pipes are all liable to disruption. Those pipes immediately in the crater will certainly be broken, but there may also be fissures and tectonic movements that may fracture mains unexposed. The latter are dangerous in that they may cause unknown leakage into neighboring buildings and liability to explosion. Consequently it will be necessary to examine from time to time buildings in the neighborhood of craters where the gas main was not exposed, to ascertain whether any gas has escaped; and it would be expedient to probe the ground along the line of the main, with a leakage indicator.

Fractured Mains: Regarding fractured mains lying in the crater, two pictures present themselves to my mind: in the first, a crater has been opened, a section of the main broken and earth and stones flying about, some possibly falling back into the crater and partly burying the pipe; the escaping gas may or may not ignite; but ignition is very probable. The windows of neighboring buildings will be broken, and possibly some walls may be pulled out and lie on top of the crater.

Water in Mains: In the second picture, all the above things are seen to happen, but there is a water main in the crater, and this is fractured, too. The water quickly fills the crater, and may or may not start scouring the crater clear of debris; but certainly the water would enter the gas pipe and seal off the gas. If the gas main is on a slope the water will flow down it, and may drive the gas ahead of it until it is able to form a siphon, and then the influx of water will be greatly accelerated. If the fractured water main is close to the fractured gas main and the crater is covered with debris from a neighboring building, the water may be capable of developing quite a high pressure in the gas main, which would itself in effect become a water main for the time. In any case water entering on the high ground would produce high pressures in the pipes in the neighboring low ground if the flow is obstructed. But the pressures imposed would never exceed the strength of the pipes which are quite capable of acting as water mains.

Stopping Escapes: If the crater is clean so that the gas pipes can be approached, it would be possible to insert by a spear bar one of those conical stoppers described in *The Gas Journal*, 9/11/38, p. 451. A stock of these of different sizes should be carried on every emergency repair wagon. The end of the pipe would be stoppered, and the men would probably be able then to approach the main and plug any small leaks temporarily with clay. But if this procedure cannot be followed, other measures must be adopted.

If gas mains, like water mains, were equipped with valves at frequent intervals, the valves could be quickly operated, and the gas out-flow or the influx of water stopped; but there are no such valves. The special bagging connection used in Birmingham *(vide, Gas Journal*, 16/11/38, p. 560) would seal off most of the gas if one could be operated on each side of the break. But this bag would not resist the water influx if a high head of water was operating, although these bags are inflated by an air compressor and can exert a considerable resistance to movement.

A very good substitute for a valve is a device described as follows: the top of the main is slotted half way around and a flanged extension is carried up. When it is desired to block the main a diaphragm is pushed in with a piece of square packing stretched around its periphery. Tests on these showed them to be quite tight. These are cheaper than valves and would fulfill the requirements of emergency measures. A number should be installed in vital positions on important mains, such as on the approaches to bridges, and on all trunk mains near valve rooms.

In England some engineers have installed "U" bends in the pipes so as to form seal pots and these have been connected through stop taps to nearby water mains; for instant use. These are, of course, perfect gas seals, but do not in my opinion answer the problem of stopping the flow of water along the main. The diaphragm would do so, provided the bottom of the pipe was kept clear of scale and dust deposits at this point. The device would probably take the form of a casting inserted between lengths of the main, and covered by a rectangular road cover. The emergency repair wagons could carry a stock of assorted sizes of diaphragms.

Leakage Control

Combating Leakage of a Broken Main: The low pressure reticulation is usually a complete network where all cross streets are linked up with through streets. Consequently, there is no possibility of introducing valves or any substitute for valves in the low pressure system; for every street corner would require four valves. So we still have to devise a method for stopping leakage of a broken main by some method quicker than breaking a large hole in the road, piercing the main and putting in a "slide" or a gas bag. Time is the essence of the contract. A new method has occurred to me, and I think that we should experiment with it on various sizes of main. A "jackhammer" compressed-air rock drill can pierce concrete at a rate of 6 to 12 in. per minute, and a small hole can be opened down to the main in two or three minutes if its position is accurately known. If it is only approximately known it can soon be located by the same drill or by an electric pipe locator. Then, with an appropriate cutter and power driven gear a hole in the top of the main can be refined or drilled in five to ten minutes. It will then be an easy matter to plug the main in a few seconds by injecting still clay or mortar from a special syringe until it piles up and forms a plug.

This will stop the gas flow and perhaps prevent fires and explosions, but the stoppage itself will then have to be cleared, which might involve subsequent road openings. I think it would be possible to insert a rubber bag into the smaller mains through the hole and would like to see it tried. After the main had been repaired at the crater, the bag could be deflated and withdrawn, and the hole could be plugged by a stopper and putty, or even by a common screwed taper plug. This procedure after a bit of experiment should suffice to block any main provided there is no rapid flow of water in it.

Pressure Control: The technical press from time to time mentions that it is expedient to reduce pressure during air raids so as to lessen risk of fires, or gassing of people near broken mains or service pipes. In any case the leakage of gas from a large broken main would automatically reduce pressures over a considerable area. In these cir-

cumstances many pilots will blow out, and if those appliances not fitted with Klixon safety cut-outs are not turned off during a raid, the gas will escape into the room whenever the thermostat opens the gas valve. The only way to counter this is to keep warning the consumers through the press and wireless. There is no remedy at all; for even if the pressures were not reduced, the blast from a high explosive bomb would put out all the pilots for half-a-mile around. Pressures must be rapidly raised directly after raids, and the public must be warned to expect such rapid fluctuations.

But referring to this question of reducing pressures, I do not think it expedient to make reductions below the normal gas holder pressure at the time. All boosters and fans would be shut down but the remaining governors would be left at normal pressures. In the Melbourne reticulation, the mains carry only low pressures, never greater than holder pressures near consumers' premises. I think that references in the technical press to reduction of pressures during air raids have in mind reticulations that are either high pressure systems, or else low pressure systems fed by high pressure feeders, and it is the fear of the latter bursting that has induced the suggestion to reduce the pressures. It must be remembered that many industries supplying war needs are depending on regular gas supply and we should not needlessly interrupt them.

Conclusion: The foregoing rapid survey of Air Raid Precautions is by nature very conservative; but the only sound way to consider the problem is to bomb the undertaking from the basement to the attic and consider how best to minimize the losses; then weigh the probability of such misfortunes, and upon this decide how much to plan now, how much to do now, and how much may be left until the last moment.

The following additional notes may prove useful. For protection against splinters from bombs up to 500 lbs. exploding not less than 50 ft. away, recommended thicknesses of materials are given below:

Mild Steel	1½ in.
Solid Brick in cement mortar	13½ in.
Plain Concrete (1¼ : 12)	15 in.
Reinforced Concrete (1¼ :2½ :5)	12 in.
Earth or Sand	30 in.
Ballast	24 in.

Timber may be fire-proofed by thorough impregnation with a concentrated solution of sulphate of ammonia. Otherwise, paint with two thick coats of the following mixture: Sodium Silicate 112 lbs., pipe clay, or whitening and coloring matter 150 lbs., water 100 lbs.

OPM's Priorities Field Service

LAST month a Presidential decree elevated Donald Marr Nelson, one-time manager of Sears, Roebuck & Co., to the chairmanship of the new War Production Board. Mr. Nelson, with authority greater than any United States citizen, except the President himself, in supervising the War Production Program will have complete power over all U. S. business and materials. Formation of the War Production Board has abolished SPAB, the members of this Board becoming Mr. Nelson's advisors.

While steps have already been taken to streamline the national war-time production activities, the function of OPM's priorities field service remains intact. It is perhaps well at this time to review the functions of OPM's (Office of War Production) priorities field service, particularly as these apply to utilities. Utilities may obtain priority ratings from OPM through three forms —Pd-1, Project Ratings, and P-46.

1. *Pd-1:* This form is used in making application for a given quantity of materials to be obtained from a specific supplier. This form may be secured from OPM's district offices and when filled out should be mailed to OPM, Division of Priorities, Washington, D. C. Routing of the request is handled at Washington, and the form should not be addressed to an individual. The average length of time for a Pd-1 to clear Washington is four to five weeks. The process of clearing Pd-1's, in extreme cases, may be speeded up by the district offices through their designation of a request for materials as an Emergency Pd-1.

2. *Project Ratings:* Project Rating forms can also be secured from district offices and are to be used when it is necessary to secure several critical materials from different suppliers in order to complete a specific construction project. These ratings, of course, carry a time limit. The forms should be sent to Washington, addressed to OPM, Division of Priorities.

3. *P-46:* This form, also available from OPM's district offices, automatically carries an A-10 rating and is to be used to secure materials for maintenance, repair and operating supplies. P-46, in December, was amended, making OPM's express approval mandatory before a utility may make any expansion of property or equipment cost ing more than $1500 in the case of underground connections or $500 in other cases. The amendment which also limits quarterly use of maintenance, repair and operating supplies to the average 1940 dollar value, applies to all producers supplying gas, water, electric power, public sanitation services, central steam heating, and the Rural Electrification Administration.

A list of the 44 district offices of OPM's Division of Priorities, Priorities Field Service, was published in *GAS*, January, 1942, on page 32. All essential information and forms may be secured through these offices.

The question has often been asked "what rating must a gas company have in order to get materials?" This question is not possible to answer, as ratings are made in Washington according to the situation at any one time and the importance of any particular priorities request to the war production effort.

At the present time there are 75 materials on OPM's critical list and more are being added daily. A material is placed upon OPM's critical list when the supply for all purposes, military and civilian, is equalled by the demand. The material goes on OPM's allocation list when the supply equals the demand for military purposes alone. Materials on this latter list are reserved almost entirely for the country's defense program, although small quantities are allocated for essential civilian needs.

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New Rubber Substitute Being Produced With Natural Gas

A new rubber substitute utilizing natural gas in its manufacture is being developed by Dr. Eugene Paul Schoch, director of the University of Texas Bureau of Industrial Chemistry.

Senator Lee O'Daniel, of Texas, has announced that he will seek a $1,000,000 Federal grant for establishment of a plant to produce "Schoch rubber," and Governor Coke R. Stevenson of Texas has stated that he will approve a deficiency appropriation, if the university applies for one, to complete research.

Dr. Schoch's method differs from other synthetic-rubber processes. It will utilize waste natural gas, and it is claimed that it will produce "rubber" at a cost half that of the synthetic produced from petroleum or guayule.

■ ■

Additional Gas Needed In Louisiana Army Camps

A request for an additional 10,000,000 cu. ft. of gas daily has been made from the city of Alexandria, La., by the utilities officers of Camp Livingston and Camp Beauregard, and Mayor W. George Bowden has asked for the increased gas supply from the Southern Gas Line, Inc., Monroe, La., with which the city has the contract to furnish fuel for Alexandria. The city's contract with the gas company calls for 15,000,000 cu. ft. daily at the present time.

Estimation of Gas Demands in Army Camps

By J. H. GUMZ

Commercial and Industrial Sales Manager,
Pacific Gas and Electric Co., San Francisco, California*

THERE has been considerable difference of opinion and conflicting information relative to the maximum demand which might be expected from the use of gas in Army Camps of various kinds. Generally speaking, cantonments are made up of varying numbers of barrack buildings, each housing approximately 63 men. Also in the larger cantonments it has been the usual practice to install mess halls, each capable of feeding approximately 250 men. In a camp of 2000 or 3000 men the maximum demands that may be anticipated from the use of gas in mess halls and for water heating in barracks has a considerable effect on the size of pipe lines needed to supply the camp requirements.

Demand in Standard Mess Halls: In order to establish some definite information in regard to this, recording gas meters were set on a standard mess hall at each of four locations; namely, Fort Ord, Presidio of San Francisco, Stockton Army Air Base and Fort Cronkhite —all in northern California. For the period that the meters were installed 103 messes, comprising 24,088 individual meals, were prepared. The gas used totaled 88,150 cu. ft. or 3.66 cu. ft. per meal. The B.t.u. value of the gas averaged approximately 1110, resulting in an average of 4062 B.t.u. per meal. Inasmuch as the messes as a whole did not operate at full capacity, this average per meal would be reduced slightly should the full manpower be fed that the mess is capable of handling.

Fig. 1 is an average of the demands created hour by hour at the four mess halls on which this test was made. The tests in each mess hall varied from one to two weeks, totaling 35 mess hall operating days. Fig. 1 may be considered as showing the average demand resulting from diversity of use, either over a monthly period or as a result of a number of mess halls in use in a given camp. It will be noted that the average peak hour occurs between 8:00 a. m. and 9:00 a. m., amounting to 35.7% of the connected load. At night the demand drops off to less than 10%, the usage during the night hours representing pilot light use, together with standby losses on the automatic storage water heaters used in the kitchen. Checking over the meter charts for the entire time of the test in the four mess halls, a maximum individual peak hour of 54% of the connected load was observed in one mess hall.

Demand in Standard Barracks: In a similar manner to the above, recording meters were set on the automatic storage waters in five standard 63-man barracks, located at the Stockton Airport, McClellan Field, San Francisco Presidio, Fort Barry and Fort Ord. The average manpower occupying the barracks was about 10% below the 63-man capacity for which the barracks are designed. The tests in each barrack varied from one to three weeks, totaling 60 barrack days. The gas consumption totaled 33,040 cu. ft. covering the heating of water for 3300 man days' occupancy of the barracks. This indicates an average gas usage for water heaters of 10 cu. ft. or 11,100 B.t.u. per man per day. The tests were run during September and October. Lower water temperatures prevailing in winter would increase this consumption somewhat.

Fig. 2 shows the average demand created by the water heaters during the period covered by the tests and shows an average peak hour of 50% of the connected load between 6:00 p. m. and 7:00 p. m. Study of the individual meter charts shows that all heaters occasionally operated at full capacity for an hour or longer at one time — the longest observed period being 2½ hours of full operation. However, the diversity of use day by day in the same barracks and between the several barracks indicates that the average peak hour usage will drop down to 50%.

Consolidated Demand: Inasmuch as the connected load per man for water heating is very close to that per man for mess hall operation a consolidation of the load curves of the mess halls and the water heaters would result in a combined average demand of about

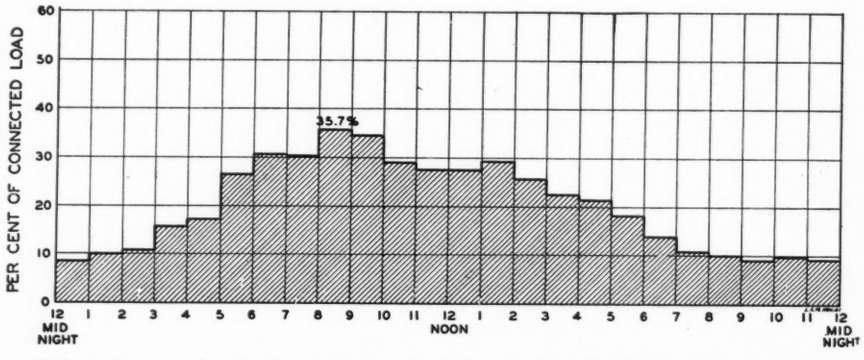


FIG. 1. Average hourly demand of standard army mess halls. Equipped with: Three coffee urns, three-section heavy duty range, one Frialator, one storage water heater. Connected load: 515 cu. ft., 1110 B. t. u. gas.

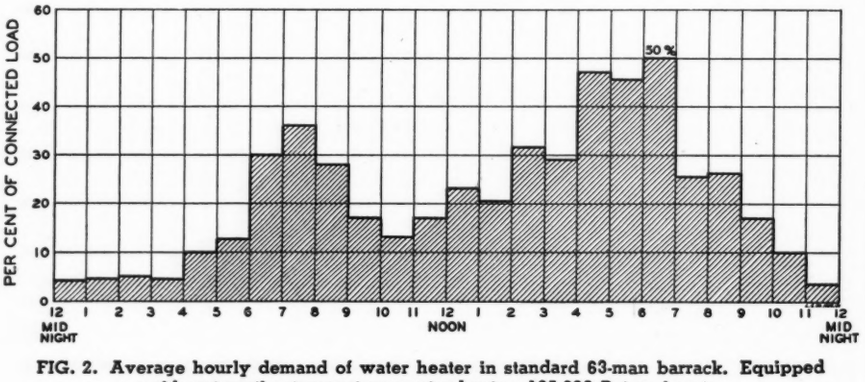


FIG. 2. Average hourly demand of water heater in standard 63-man barrack. Equipped with automatic storage type water heater, 135,000 B. t. u. input.

*Pacific Coast Gas Association Gas Utilization Data Bulletin No. 105, issued in December, 1941. Subject: "Determination of Maximum Gas Demands Created by Army Mess Halls and the Use of Water Heaters in Barracks."

35% during the peak hours, which would be between 4:00 p. m. and 5:00 p. m.

Applicability: While these data are believed to reveal quite accurately the rate of gas consumption which may be expected in a standard army camp it should be understood that percentage figures shown on the charts will not apply to other fuels or to electricity because of their different characteristics. Gas acts almost instantly in its application of heat to the work with the result that there is no preliminary kindling or warming up period to affect the demand curve.

■ ■

Committee Asks Information On Aviation Fuel Production

SUCCESSFUL carrying on of the nation's war effort will require maximum production of all grades of aviation fuel and synthetic rubber, and all owners of plants producing products vital to their manufacture have been requested to give information as to the largest quantities of these products they can produce, N. C. McGowen, chairman of the Natural Gas and Natural Gasoline Committee for Texas, Louisiana, Arkansas, Mississippi, Alabama and New Mexico, said following a meeting of this committee in Houston, Texas.

Owners of plants manufacturing butane, isobutane and isopentane, whether as products or by-products, are being requested to increase their production to the maximum quantity economically possible. Persons or companies planning new plants have been requested to design and construct these plants so as to make the greatest use of scarce materials and to provide for the most efficient extraction of these vital elements.

These three components are produced in liquid form and shipped to refineries making aviation gasoline where they are blended with gasoline refined from oil, the resulting product having an octane rating far above that of average motor fuel.

The committee has established offices at 801 Mellie Esperson Bldg., Houston, Texas, and has mailed questionnaires to all owners of plants in this district. These questionnaires are to be filled out and returned immediately so that the committee may have this information available for the Office of Petroleum Coordinator for National Defense.

■ ■

National Defense Clinics to Increase Work in Small Plants

As a result of the OPM National Defense Clinics recently held in various California cities, approximately $20,000,000 may be farmed out to small plants.

At the San Francisco meeting, some 2693 small manufacturers and machine shop owners examined 1000 items of defense production displayed by the Army and Navy and other big contractors.

■ ■

Billings Gas Co. Expansion

The Billings Gas Co., Billings, Mont., is spending $400,000 in building a plant in Garland Field, ig Horn county, Wyo., a gas-compressor plant in Elk Basin field, Park county, Wyo., a 21-mile 8⅝-in. pipe line to connect the two fields, and other improvements. Elk Basin has supplied the line for 20 years.

OPC Committees on Natural Gas

IN order to coordinate defense activities with production and transportation of natural gas and with the processing, manufacture and transportation of natural gas derivatives including natural gasoline, committees on natural gas and natural gasoline were appointed by Harold L. Ickes, Director, Office of Petroleum Coordinator, on January 5. Chairmen and committee members of the five districts, which cover the United States, are as follows:

J. F. ROBINSON

B. R. BAY

District 1 — J. French Robinson, chairman, East Ohio Gas Co., Cleveland, Ohio; Loring L. Tonkin, Hope Natural Gas Co., Clarksburg, W. Va.; G. E. Walker, United Natural Gas Co., Oil City, Pa.; H. A. Wallace, Jr., United Fuel Gas Co., Charleston, W. Va.; H. D. Freeland, Waynesburg, Pa.; Samuel Brandel, Brandel Producing Co., Pittsburgh, Pa.; Sam S. Keenan, Carnegie Natural Gas Co., Pittsburgh, Pa.; D. P. Hartson, Equitable Gas Co., Pittsburgh, Pa.; Thomas H. Kerr, Ohio Fuel Gas Co., Columbus, Ohio; and R. N. Parks, Virginian Gasoline & Oil Co., Charleston, W. Va.

District 2—Burt R. Bay, chairman, Northern Natural Gas Co., Omaha, Neb.; A. W. Ambrose, Cities Service Gas Co., Bartlesville, Okla.; Frank B. Long, Oklahoma Natural Gas Co., Tulsa, Okla.; E. V. Kesinger, Natural Gas Pipe Line Co. of America, Chicago, Ill.; W. C. Taggart, Taggart Brothers, Inc., Big Rapids, Mich.; C. S. Sanders, Stanolind Oil & Gas Co., Tulsa, Okla.; Edward Buddrus, Phillips Petroleum Co., Bartlesville, Okla.; Joseph A. La Fortune, Warren Petroleum Corp., Tulsa, Okla.; H. M. Stalcup, Skelly Oil Co., Tulsa, Okla.; and Maj. T. J. Strickler, Kansas City (Mo.) Gas Co.

District 3—Neil C. McGowan, chairman, United Gas Pipe Line Co., Shreveport, La.; R. E. Wertz, Amarillo Gas Co., Amarillo, Texas; Paul Kayser, El Paso Natural Gas Co., El Paso, Texas; C. Pratt Rather, Southern Natural Gas Co., Birmingham, Ala.; E. F. Schmidt, Lone Star Gas Co., Dallas, Texas; Ted Goebbel, Shell Petroleum Corp., Houston, Texas; J. H. Boyle, Hanlon-Buchanan, Inc., Tulsa, Okla.; Clyde Alexander, Dallas, Texas; Lawrence R. Hagy, Hagy, Harrington & Marsh, Amarillo, Texas; and J. H. Dunn, Shamrock Oil & Gas Corp., Amarillo, Texas.

District 4—Robert W. Hendee, chairman, Colorado Interstate Gas Co., Colorado Springs, Colo.; Cecil W. Smith, Montana Dakota Utilities Co., Minneapolis, Minn.; J. H. McIntire, Northern Utilities Co., Casper, Wyo.; F. T. Parks, Public Service Co. of Colorado, Denver, Colo.; R. D. Smith, Glacier Production Co., Butte, Mont.; J. D. Roberts, Mountain Fuel Supply Co., Salt Lake City, Utah; E. B. Coolidge, Hard Rock Oil Co., Great Falls, Mont.; J. C. Johnston, Continental Oil Co., Denver, Colo.; and John T. Bishop, Basin, Wyo.

District 5—William Moeller, chairman, Southern California Gas Co., Los Angeles, Calif.; George F. Schroeder, Standard Oil Co. of California, San Francisco, Calif.; E. H. McCollough, Amerada Petroleum Corp., Los Angeles, Calif.; A. F. Bridge, Southern Counties Gas Co, Los Angeles, Calif.; W. G. Vincent, Pacific Gas & Electric Co., San Francisco, Calif.; H. L. Farrar, Coast Counties Gas Co., San Francisco, Calif.; R. H. Green, Signal Oil & Gas Co., Los Angeles; H. L. Eggleston, Gilmore Oil Co., Los Angeles; H. R. Linhoff, Richfield Oil Corp., Los Angeles; and L. V. Cassady, Lomita Gasoline Co., Long Beach, Calif.

N. C. McGOWAN

R. W. HENDEE

WM. MOELLER, JR.

Preparing for War in Gas Distribution

By C. S. GOLDSMITH

Engineer of Distribution, The Brooklyn Union Gas Co.,
Brooklyn, New York*

ON TUESDAY evening, August 26, 1941, a severe electrical storm started a train of events that is directly responsible for my being here tonight. While it is true that C. E. Paige, president of the company, had caused a committee to be set up some weeks earlier to deal specifically with national defense, the havoc caused by the storm greatly accelerated defense activities. Because of the tremendous downpour —literally a cloudburst—a storm sewer collapsed, sand was washed away, planking fell 30 ft. into a subway excavation, and gas main bypasses, water mains, electric poles, and part of a house foundation were carried into the excavation. The resultant chaos was so similar to what might be expected from an exploding bomb that all of us in The Brooklyn Union Gas Co. were given an impetus we otherwise might not have had.

Reports of just what happened that night are rather conflicting. Some of the newspapers claimed that lightning hit the subway decking. Others said lightning hit the gas mains. The known facts are that the decking collapsed, the storm sewer that was exposed was broken, and that water from the storm gushed into the contractor's excavation. A severe gouging of the surrounding soil took place and the gas main bypasses that were placed well back of any danger resulting from ordinary cave-ins, were completely torn away. All shut-off valves were carried away also. In the midst of all this disorder the gas caught fire. The gas poured from both ends of a 24-in. medium pressure main, both ends of a 12-in. low pressure main, and from both ends of a 6-in. low pressure main. The rate of gas escape is estimated at 1,000,000 cu. ft. per hour.

First Task

The first task of the gas company's forces was to stop the flow of gas. This was done by closing the nearest valves on the medium pressure main and by bagging and capping the low pressure mains. Before the bagging and capping operations could be performed, excavations had to be made at points some distance from the crater because of the intense heat generated by the burning gas. Company employees, not connected with the Distribution Department, volunteered their services and worked side by side with those whose duty it was to carry on such work.

Here we had all the elements of dealing actually with the results of a bombing raid. If volunteers with no previous training could be used on this sort of thing, how much more valuable they would be if they were properly instructed!

In the weekly gas company paper of September 26, 1941, President Paige called for volunteers:

> "Under attack, the territory we serve would become Target Number One for the enemy bomber. Our task would be to maintain gas service at high efficiency to the factories and homes of Brooklyn and Queens, in the face of circumstances none of us can foretell.
>
> "That is why The Brooklyn Union Gas Company Defense Corps is being organized. Employees, whatever their regular duties may be, can volunteer in this Corps. They will be organized into neighborhood units. They will be trained in the fundamentals of air raid precaution work. They will, in case of real emergency, be invaluable allies of our street and service crews."

The Defense Committee was enlarged to include representatives of the Manufacturing Department, the Construction Department, the Distribution Department, the Publicity Department, and a member to contact outside agencies, such as the Police and Fire Departments of the city. An executive secretary was appointed to serve as a clearing house and coordinator for all activities. Directions on how to volunteer were immediately published, and to date more than 1000 employees have sent in their names to the secretary.

Mr. Paige's idea of having the volunteers organized into neighborhood units was interpreted to mean areas of approximately three square miles, the average size of police precincts. Since it appeared to be highly desirable to have a police captain in each area, the boundary lines were finally established to coincide with those of the police precincts.

The next step in organization was that of selecting from among the volunteers, 31 men to serve as captains of the Defense Units. This was no easy task. It seemed desirable to appoint Street Division Foremen to these important posts, but when the addresses of all foremen were posted on a map of our territory, it was found that at least a dozen precincts contained no foremen at all, while other precincts contained the names of several. We then had to call upon other departments to give us names of men who, in their opinion, would make good captains, regardless of whether or not such men had volunteered. We were reasonably sure that any man we selected would volunteer if we asked him to do so.

Defense Corps Captains

The 31 Defense Corps captains, as finally appointed, cover a wide variety of occupations:

Foremen	15
Assistant Foremen	2
Street Mechanics	2
Dispatcher	1
Supervisor, Watchmen	1
Superintendent's Assistants	2
Commercial Sales Manager	1
Meter Reader Foreman	1
Branch Manager	1
Separator Man	1
Superintendent	1
Patcher Foreman	1
Machinist	1
Engineer of Industrial Gas Utilization	1
	31

A training course for captains and their men was instituted. The captains received their training first from the director of the Service School, followed by the men, who in turn were instructed by the captains. With this set-up we accomplished two things: the captains had an opportunity to meet and become acquainted with the men who would serve under them, and they had another chance to rehearse the training they had already received.

The instruction given to all these men includes a short talk by the director or assistant director of the Defense Corps on the purpose and aims of the whole plan, followed by specific instructions on how to turn off appliances and how to turn them on again. It is emphasized that gas is *safe*—only the mishandling of gas appliances may cause trouble.

*From a paper, "Defense Preparation in Distribution Work," presented before the New England Gas Association meeting, Hotel Bradford, Boston, Mass., January 14, 1942.

In addition to this instruction, the captains and volunteers are shown how to shut off the gas if mains are fractured in the street. A large excavation has been made in one of the company yards and four 6-in. cast iron mains project into the simulated bomb crater. The ends of the pipe are left jagged, as might be expected from the effects of an exploding bomb. Gas is then ignited at all four ends.

Four methods of shutting off the burning gas are used in this phase of the work:

1. Closing a valve.
2. Inflating a bag.
3. Using a conical plug.
4. Injecting grease through a service pipe.

After the gas has been shut off on all four pipes, the men are shown how to make a quick permanent repair on one of the mains. Special repair sleeves are used to make the connections.

All employees in the Street Main Department receive similar instructions.

Defense Corps captains are conducted through their precincts by engineers of the Distribution Department in order to familiarize them with the locations of valves, district regulators, transmission mains, fire houses, police stations, etc. A large map, on which all of these things are indicated in contrasting symbols, is furnished the captain. At this time captains are made acquainted with the police officer in charge of the precinct.

Equipment List

The matter of how best to have Defense captains reach locations of emergencies with their varied equipment has been given considerable thought. The equipment list is shown in Table No. 1.

It was thought at first that private cars could be used, but this idea was abandoned when it was found that many captains did not have cars and that the problem of liability was difficult to solve. It is now believed that company trucks, taken home by the captains at night and returned to their regular work in the morning, will serve the purpose. In those cases where captains cannot drive a car, some other member of the squad will have to be used until the captain can be taught to drive.

As far as practicable we are decentralizing storage of important automotive equipment such as drip trucks, compressors, valve trucks, governor trucks, etc. The plan of having Defense Captains take company trucks home with them at night will help to further decentralize the fleet.

The telephone company has cooperated with us in agreeing to establish a preferred list of company telephones and employees' residential telephones. In the case of an air raid, telephones on this preferred list will be kept in service for communication with all other telephones on the list. Each of these telephones has been given an arbitrary serial number, and the telephone locations and numbers have been spotted on a map. Copies of this map are to be supplied not only to all captains, but also to all employees concerned.

All captains, as well as all other key men, have been given instructions to telephone their whereabouts and how they may be reached whenever they leave their homes after working hours.

We plan to instruct all of our forces to go to the nearest home telephone when an air raid alarm is sounded. Each employee will be given a map on which will be shown by red dots, numbered consecutively, each of the 219 telephones that we hope will remain on the preferred list. The addresses of these numbered telephones will be given on a separate sheet attached to the map in order to guide the employee to the address at which the telephone is located. With this scheme in effect, all employees of both Street Division and Customers' Service Division will be at a telephone where they can be reached. This, of course, applies only to day work. For after-hour emergencies that may arise, we will depend upon the Defense Corps captains to carry out the assignments for which they have been appointed.

It is hardly necessary to say much about the vital necessity of an uninterrupted supply of gas for the Brooklyn Navy Yard. An alternate gas supply is being installed and all shut-off valves are being inspected to make sure they are in good operating condition. Thirty-six Navy Yard employees, who have been especially selected for the purpose, are now receiving detailed instruction at one of our properties on how to deal with broken gas mains in the Navy Yard as the result of an air raid.

One thousand 1½-in. diameter Stimsonite reflector buttons and mounts have been ordered from the Safety Signal Corp. These reflector buttons are made of Lucite and reflect 7½ times as much light as glass buttons. They are to be attached to tool carts and stanchions to protect them during and after blackouts.

Company Collaboration

The four major companies serving New York City with gas have collaborated to compile a "Catalog of Major Tools and Equipment" to facilitate obtaining help from each other in case of need. This catalog is indexed and cross-indexed and, in addition to listing all important equipment and materials, it indicates the place of storage and how equipment may be obtained after working hours. In the case of special machine tools, such as pipe saws and boring machines, the operator's name, address and telephone number is given, too. In the case of tool carts and all special service trucks, the average equipment of tools and materials is listed. Home addresses and telephone numbers are given for all important operating supervisors. This is important if workmen have to be transferred from one company to another outside of working hours.

TABLE NO. 1. DEFENSE EQUIPMENT LIST.

Equipment Issued to Captains

Equipment	*Total*	*Equipment*	*Total*
Asbestos Helmet and Gloves	1	Standard Long Bar of Soap	1
Folding Plug Handle, four 8-ft. sections	1	Roll of White Tape	2
Plug for 4-in. Main	2	First Aid Kit (Large)	1
Plug for 6-in. Main	2	Set Valve Keys	1
Plug for 8-in. Main	2	Book of Instructions	1
Plug for 10-in. Main	2	100-ft. Length of 3/16-in. Steel Cable	1
Plug for 12-in. Main	2	Canvas Covered Bags for 16-, 12-, 8-,	
Curb Valve Keys	1	6-, and 4-in. Mains (of each type)	2
Shovel	1	Canvas Covered Bags for 20- and 24-in.	
Pick	1	Mains where required	2
Crow Bar	1	Bag Pump and Gauge	1
Valve Cover Hook	2	Precinct Map	1
50-ft. Linen Tape Measure	1	1-lb. Can Grease for Plug	1

Issued to Captain and Squad (Consisting of Six Men)

Equipment	*Total*	*Equipment*	*Total*
Canvas Bag for Hand Tools	7	Standard No. 3 Pencil	7
Flashlight	7	First Aid Kit (Small)	6
10-in. Stillson Wrench	7	Book of Instructions	6
Roll of White Tape	6	Pair of Pliers	7
Pair of Gloves	7	Small Bar of Soap	6
Pad of Paper	7		

SALES

Home Defense Theme in Gas Advertising

A STRIKING theme with pungent words characterizes the current advertising campaign of the Washington (D.C.,) Gas Light Co., tying up with national defense without necessarily waving a flag, and selecting certain indicia as most representative of the call of the hour.

These emblems, used consistently in their advertising, included the head of a "minute man" in every ad, stars, and a shield which was a replica of the Treasury Department's "Buy a Share in America," except that it was redesigned (by permission) to be made more typical of the gas industry.

The minute man was selected because he was indicative of what the defense program really stood for. He was an emblem of defense and father of the Revolution, which gave birth to a nation conceived in freedom.

Not satisfied with the idea but liking it, permission was obtained to make up their own shield along the line of handling defense bonds and stamps but oriented against a gas mold (tank) and a gas plant, and used in all advertising copy. (See cut on this page.)

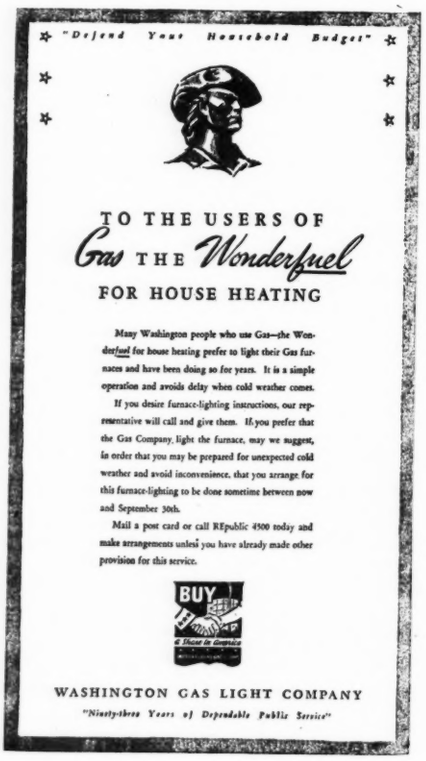
The same emblems were used on all envelopes mailed out of the office and on all truck posters. It was an effective way to identify the gas company with the defense program. At the same time another important angle is that it served for the headline, a theme consistently carried through in all advertising copy used, of "Defend Your Household Budget." The newspaper copy also tied up with defending the household budget by using gas, whether it was copy on refrigerating, ranges, water heaters or house heating.

Then to get away from the use of the word "gas," which was being used indiscriminately by the newspapers in talking about the gas shortage, the advertising designated gas as "the wonderfuel" and this was carried in all copy, along with the slogan.

The idea was to sell the modernity of gas through the modernity of the appliance, without necessarily selling the appliance; teaching the public that gas is as modern as the appliance that burns it and going into the virtues of gas for fuel and for modern cooking and hot water service in newspaper copy. Yet there is no statement in any ad that gas appliances are on sale or that they can be budgeted; instead the appliance is mentioned as a medium of using the fuel. Thus the copy which covered gas for modern cooking read:

"Today, with continued increased living costs, homemakers are paying more and more attention to the food budget. Foodstuffs are being carefully selected for their Vitamin and Health-giving content. Careful consideration is being given to the method of food preparation. More than 195,000 homemakers in metropolitan Washington use GAS . . . the Wonderfuel . . . in their food preparation."

Another ad, featured vitamins more strongly. The "V" in vitamin was capitalized like "V" for victory in the copy. The company also brought out that 90 per cent of Washington's new homes, erected during the last three years, selected modern automatic gas water heaters, because builders, architects and home owners prefer gas . . . the wonderfuel for modern hot water service and because modern automatic gas water heaters provide a constant and abundant supply of clean hot water for every household purpose with never a wait, never a disappointment.


"Defend Your Household Budget"
TO THE USERS OF
Gas THE Wonderfuel
FOR HOUSE HEATING
Many Washington people who use Gas—the Wonderfuel for house heating prefer to light their Gas furnaces and have been doing so for years. It is a simple operation and avoids delay when cold weather comes.
If you desire furnace-lighting instructions, our representative will call and give them. If you prefer that the Gas Company light the furnace, may we suggest, in order that you may be prepared for unexpected cold weather and avoid inconvenience, that you arrange for this furnace-lighting to be done sometime between now and September 30th.
Mail a post card or call REpublic 4500 today and make arrangements unless you have already made other provision for this service.
BUY
WASHINGTON GAS LIGHT COMPANY
"Ninety-three Years of Dependable Public Service"

In this effective manner the gas company is keeping its name before the public during the emergency in a modest sort of way and at the same time keeping the purpose of its advertising paramount. It is designed to cultivate an acceptance of the company's fuel.

The advertising copy employed shields, stars, half-tones and other effective layouts. All ads were confined to four columns by two hundred lines, some were 3 by 200, some 3 by 150. Full page ads were not used at all, the attempt being to get reader interest and attention in the smaller size ads without jamming it down the reader's throat in full page display ads. Thus the company maintained a certain dignity and poise and was far less flambuoyant than a full ad page might have been.

This type of advertising copy, with plenty of white space, has succeeded in capturing the attention of the reading public in the nation's capital and was very favorably received locally as typical of the call of the hour . . . the national emergency.

■ ■

Servel Sales Seminar for Gas Refrigerator Salesmen

Servel, Inc.'s new sales seminar training program, which began January 5, is offering a complete course of study in selling technique applied to gas refrigeration. Seminar classes are being conducted by specially trained sales representatives in conveniently located field locations all over the country.

Study is based upon a series of five new "seminar" textbooks, which have been written expressly for the training program. These books are: "Modern Motorless Refrigeration;" "Food and Features;" Staging the Sales Story;" "Creating Prospects;" and "Making the Call-Back." The entire series was prepared by Servel's sales promotion department.

Complete information concerning the seminar may be obtained from any local sales manager or Servel representative, or by addressing Servel, Inc., Sales Promotion Department, Evansville, Ind.

■ ■

Employee Leads Sell 5350 Units for Brooklyn Union

Brooklyn (N. Y.) Union Gas Co. employees during 1941 filed 29,772 leads of which 4419 were productive, resulting in the sale of 5350 appliances, according to Frederick G. Roberts, sales plan captain. The sales figure represented an 11% increase over the preceding year and set a new record for the employee sales plan.

Range sales resulting from leads increased 352 points over 1940, from 712 to 1064. Water heater sales rose from 901 to 997, house heaters from 484 to 534 and space heaters from 76 to 133.

Walking Signboard Arouses Interest in Minocqua, Wis.

R. A. Penn of the Minocqua Plumbing & Heating Shop, Minocqua. Wis., uses novelty and originality in his devices to stir community interest in Roper Dri-Gas cookery. One of his latest stunts is the walking signboard pictured here.

The young man supporting the signs is dressed in a complete chef's uniform with his hands and face covered with a layer of burnt cork. The photo shows a few of the 1000 balloons given away carrying the firm's sales message.

■ ■

Arkansas-Louisiana Workers Receive Prizes for Ad Ideas

Prizes totaling $75.00 will be awarded to employees of Arkansas-Louisiana Gas Co., Shreveport, La., who submit the best suggestions for copy for the company's bulletin boards during 1942.

Purpose of the contest is to stimulate the employees to think of company service and policies from the consumer's viewpoint. Three separate periods for sending in copy suggestions have been announced and $25.00 will be awarded for the best copy submitted each period if the winning copy is deemed appropriate for use.

The first period of competition opened January 1 and closed February 1. The second period opened February 1 and runs until June 1; the third period runs from June 1 until October 1. The same employee may win all three awards if he or she submits the winning idea in each period, stated Lester Moore, advertising manager of the company.

■ ■

Newspaper-Sponsored Cooking School Sells Ranges

Capacity crowds attended and Ohringer Home Furniture Co. sold several ranges soon after participating in a newspaper-sponsored cooking school held in the High School auditorium at Greensburg, Pa. All cooking demonstrations featured a Roper gas range. Ohringer's ran gas-range ads in each edition of the Greensburg daily newspaper during the event and displayed a $219 Roper gas range in its store window.

Pittsburgh Gas Range Sales Hit Peak

THE largest sales volume ever attained during a Gas Appliance Promotion Division Campaign in the greater Pittsburgh, Pa., area resulted from the 1941 October campaign, sponsored by the Gas Appliance Promotion Division, reports Emerson H. Rupert of the Division.

In the campaign, dealer sales volume totaled $493,038.40; 547 dealers in 100 towns sold 4548 gas ranges. Overall average gross price of gas ranges ran $13.26 higher than during October 1940, or $108.41 as compared with a gross average of $95.15 in October 1940. The $108.41 represents an all-time high and shows a continued tendency toward the sale of better quality gas ranges by dealers.

Average gross selling price of CP models ran $16.45 higher than during October 1940, or $135.47 as compared with an average gross CP price of $119.02 in October 1940. In their window and store displays 367 dealers used campaign material; 160 dealers used the Gas Broil-O-Guide free offer: and dealers received 8000 Gas Broil-O-Guides for distribution to signers of the coupons which the dealers ran in their community papers.

Newspaper advertising on gas ranges appearing in community papers totaled 19,865 column inches of advertising and publicity. Independent dealers ran 9195 column inches at a total cost of approximately $10,756, and community papers through releases sent from the Gas Appliance Division office received 952 column inches of publicity.

More than 1120 people representing 268 retail firms attended the Regional Gas Range Rallies held prior to the Campaign, and 550 individual sales people from 274 firms took part in the Merchandise Prize Promotion. By now each contestant has received valuable merchandise awards chosen from the GAPD Prize Book.

DOTTED LINE ROSCOE - - - - - - - By Bob Crosby

"Calling D. L. Roscoe. Calling D. L. Roscoe. This is Miss Jones. The boss wants to know where you put that last water heater contract."

A "Sales Truce" in London

ACCORDING to the Stoke Newington Electricity Committee, a sub-committee consisting of representatives of the "London Sections" of the Electrical Development Association and the Gas Development Association has prepared a memorandum setting out a recommended war-time sales procedure for gas and electricity undertakings in London. The committee says it has accepted the recommendation and has agreed that the sub-committee shall meet from time to time to discuss and advise upon any difficulties arising. The recommendations are as follows:

1. That there shall be eliminated from publicity and propaganda of both undertakings any statement which might be derogatory to either interest.

2. That there shall be no canvassing of dealers and that payment of commission for the preferment of either industry to agents of any class shall cease.

3. That both undertakings shall refrain from canvassing for substitution of gas and electrical appliances already installed.

4. That both undertakings shall, if they so desire, leave their respective appliances in premises from which consumers have removed.

5. That in the case of entirely new premises which have been piped for gas and wired for electricity, both undertakings shall refrain from installing apparatus until the prospective occupier has made his or her choice, unless the owner of the premises accepts responsibility and pays the standard charge.

6. That, subject to the provisions above, both undertakings shall be free to obtain new business and have the right to deal without restriction with new consumers and changes of tenancy.

7. That both undertakings may, on request and in confidence, exchange information concerning contracts and credit standing of a consumer applying for a piece of apparatus in replacement of a comparable piece already installed by the other undertaking and may also on request and in confidence notify each other when a consumer is disconnected for the non-payment of an account.

8. That the provision of piping or wiring of appliances free or at a reduced rate (excepting for instructional purpose in schools) shall be discontinued.

9. That the gas companies shall use every endeavour to fix and support gas hobs in such a way that they cannot be used on electric cookers. Where that is not reasonably practicable the difficulty shall be discussed with the owners of the cookers. All canvassing for this class of business shall be discontinued.

10. That both undertakings shall refrain from making any payments to speakers at any lectures except in cases where the speakers are members of the staffs of the undertakings or of the gas and electrical industries' associations. — Reprinted from the *Electrical Review*, 4th April, 1941.

Six farm-girl "cooking champions," national winners of the 1941 4-H Club food preparation project, are shown receiving the congratulations of Lois Adams (second from right), of Apache, Okla., 1938 national winner, and George S. Jones, Jr., vice president and general sales manager of Servel, Inc., Evansville, Ind. Each was awarded a college scholarship by Servel, sponsors of the nutrition program. They are (left to right): Betty Richie, Beulah, Colo.; Hazel Buckingham, Monroe, Ore.; Sara Perl Sheets, Putnam, Okla.; Robbie Evelyn Beaird, Lillie, La.; Reta Ryan, Cumberland, Md., and Lila Jane Bean, Vesper, Wis.

■ ■

A. G. A. National Ads to Continue Dual Copy Theme

Continuing to bring out the dual copy theme of "His Views" and "Her Views" on the problem of fuel for cooking, refrigeration, house heating and water heating, the American Gas Association's national advertising campaign which began in September, 1941, *(GAS*, October, 1941, pg. 70) with full page color ads in magazines which reach more than 90% of all gas-served homes in the nation, is now well under way.

One ad, headlined "She's a Changed Woman! . . . He's a Changed Man!", appeared in *Life* magazine on January 19 and will be carried again in the February issues of the *Ladies' Home Journal* and *Better Homes and Gardens*. Another ad, headlined "A Wife Confesses . . ." and "A Husband Confesses . . ." will appear in *Life* magazine February 23, the March issues of *McCall's* and *Good Housekeeping*, and the April issue of *Ladies' Home Journal*.

Gas companies have been using reprints of these ads for home service demonstrations, house-to-house calls and for counter distribution on sales floors. Quantity lots of the reprints are available at $13.00 per thousand, F. O. B. New York.

■ ■

"Delectable Dinners" Tells Simple Meal Planning Steps

"Delectable Dinners—Menus with Recipes," a 387-page book by Anna J. Peterson and Nena Wilson Badenoch, published by E. P. Dutton & Co., Inc., New York, N. Y. ($2.75) is an entirely different kind of cook book which solves the increasingly important question "What shall we have for dinner?"

Designed to save time and solve daily household problems, the four major questions, (1) What shall we have to eat?; (2) What do we need to order?; (3) How long will it take to prepare? and (4) How do we cook it? are answered simply and plainly.

Written by national authorities in the science of home economics, the book is now in its sixth printing and has been praised by many experts in the art of modern cookery. Miss Peterson was formerly home service director, The Peoples Gas Light & Coke Co., Chicago, Ill., and Miss Badenoch has been her assistant for many home economics demonstrations.

■ ■

Natural Gas Aids House Heating in Alton, Ill.

The Alton (Ill.) Gas Light Co. reports that gas consumption has increased tremendously since natural gas was brought to that city four months ago. The city of Alton, which had no gas heated homes prior to September, 1941, now has 53 gas heated homes and will soon have 40 more. The changeover on 4500 appliances was made by a crew of 60 men.

Natural gas was brought to Alton with the cooperation of the St. Louis (Mo.) County Gas Co. The gas is piped 475 miles from Monroe, La. Expected economies include an average deduction of 17% on gas bills, or a total of $24,000 per year to gas customers in the Alton industrial area. This saving results from a combination of new gas rates and a 69% increase in the B.t.u. heating value of natural gas over manufactured gas.

A. G. A. Publishes Report Of Promotional Exhibits

THE residential section of American Gas Association has published a "Report of Special Promotional Exhibits and Activities Committee" booklet (Interim Bulletin No. 66) in the interest of the gas industry on the subject of special gas sales promotional exhibits and activities.

A number of promotional activities undertaken by gas companies and gas appliance manufacturers throughout the country during 1941 are outlined and illustrated. The committee requests the cooperation of gas companies and gas appliance manufacturers in making available information and details relative to their special promotional exhibits and activities for publication in later bulletins.

The membership of the committee is as follows: A. P. Lewis, Central Illinois Electric & Gas Co., Rockford, Ill., chairman; O. J. Broyles, Roanoke (Va.) Gas Co.; R. C. Anderson, United Gas Corp., Houston, Texas; H. R. Carlson, The Hartford (Conn.) Gas Co.; George L. Cullen, Harrisburg (Pa.) Gas Co.; R. A. Gordon, Washington (D. C.) Gas Light Co.; J. W. Lea, Atlanta (Ga.) Gas Light Co.; and J. J. Winn, Portland (Ore.) Gas & Coke Co.

■ ■

Southern Counties Gas Co. Has Greatest Sales Year

Southern Counties Gas Co., Los Angeles, Calif., celebrated the greatest sales year in the history of the organization at their 31st annual sales dinner held in Los Angeles on January 22. Present were 115 officers, executives and members of the sales staff.

Principal speaker for the evening was F. S. Wade, president of the company, who praised the work of the sales staff in achieveing sales totaling $1,324,000 in value for the year. "Southern Counties Gas Co.," he said, "now serves 217,000 meters, an increase of 25,000 over the previous year." Twelve thousand of these meters were acquired through the merger of the Southern Counties Gas Co., with the Santa Maria Gas Co. in November, 1941.

Other speakers included N. R. McKee, vice president in charge of sales, and Carroll Miller, Pacific Coast regional manager of Servel, Inc. Feature of the evening was the unveiling of the company's service flag. Its 39 stars represent the company employees who had been called to service. Clyde H. Potter, sales manager, presided at the meeting.

■ ■

Brooklyn Union Sendout Sets Record for Last 16 Years

The Brooklyn (N. Y.) Union Gas Co. has reported that its gas sendout for two consecutive days last month (January 7 and 8) set a 16-year record and topped all previous records except for several days back in 1926 when a coal shortage caused large numbers of customers to light their kitchen ranges in order to keep warm.

In the 24 hours ended at 7 a. m. on Wednesday, January 7, the sendout totalled 109,849,000 cu. ft. Then, in the succeeding 24 hours it soared even higher—to 113,663,000 cu. ft. The March 5, 1926, record is 121,555,000 cu. ft.

A cold wave which sent the mercury to 6° above zero was responsible for the extraordinary sendout. The company now has nearly 13,000 house heating customers and the extra gas used by their equipment was largely responsible for the increase. Another factor which contributed to the heavy sendout was the increased use of industrial gas.

Progress in Central Gas-Fired Heating

THE continued progress of natural gas in the field of central gas-fired heating in both homes and buildings in the 12 months period ending July 1, 1941, is revealed in the 14th annual report of the statistical department of the A. G. A. on gas central space heating installations in the United States and Canada.

The survey revealed a 16% gain in domestic heating customers over the previous 12 months period by the 229 natural, mixed and manufactured gas companies who cooperated in supplying figures. These companies serve a total of 8,400,729 customers.

As might have been expected, natural gas led the way in the actual number of domestic central heating installations. Natural gas companies serving only 23% of the total number of natural gas customers in the country reported 17,773 new installations as compared to only 14,443 installations reported by manufactured and mixed gas companies representing 65% of the total number of manufactured and mixed gas customers.

In building heating installations also the natural gas side of the industry continued its dominance. Complete reports from 83 natural gas companies showed that they were serving 10,854 building heating installations July 1, 1941, a gain of 19.4% over the 1940 figures. Only 7323 building heating installations were in service by 88 manufactured and mixed gas companies on July 1, 1941, an increase of 17% over 1940.

Additional evidence of the greater acceptance of the natural gas by domestic customers as a fuel for central space heating is found in the figures on the market saturation reported by natural gas companies as compared to those for manufactured and mixed gas companies. The average percentage of natural gas domestic customers who were reported to use natural gas for central space heating, as well as for other household purposes, was 7.32% as contrasted to only 1.5% of the customers reported by the manufactured and mixed gas companies.

Natural Gas: Reports from 94 natural gas companies serving 1,805,406 customers, or approximately 23% of the total natural gas customers of the country, showed that these companies had

TABLE NO. 1. COMPARATIVE SUMMARY OF DATA ON GAS-FIRED CENTRAL HOUSE HEATING INSTALLATIONS AS REPORTED FOR JULY 1, 1941, AND JULY 1, 1940.

	July 1, 1941	*July 1, 1940*	*Increase*	*Per Cent Increase*
1. Total Gas Customers Served	8,400,729	8,155,026	245,703	3.0
2. Gas-Fired Boiler Installations:				
(a) Gas Design Jobs	37,740	34,563	3,177	9.2
(b) Conversion Jobs	42,760	39,577	3,183	8.0
(c) Total Jobs	80,500	74,140	6,360	8.6
(d) Gas Design Jobs (Per Cent of Total)	46.9	46.6	.....	....
3. Gas-Fired Furnace Installations:				
(a) Gas Design Jobs	99,270	76,024	23,246	30.6
(b) Conversion Jobs	53,880	51,320	2,560	5.0
(c) Total Jobs	153,150	127,344	25,806	20.3
(d) Gas Design Jobs (Per Cent of Total)	64.8	59.7	.....	....
4. Total Gas-Fired Boilers and Furnaces:				
(a) Gas Design Jobs	137,010	110,587	26,423	23.9
(b) Conversion Jobs	96,640	90,897	5,743	6.3
(c) Total Jobs	233,650	201,484	32,166	16.0
(d) Gas Design Jobs (Per Cent of Total)	58.6	54.9	.....	....
5. Gas Consumption of above Central House Heating Installations for Twelve Months Ending with Given Dates (MCF)	58,428,202	54,880,931	3,547,271	6.5
6. Gas Consumption per Installation (MCF)	257	283	−26	−9.2
7. Number of Central House Heating Installations per 1000 Customers	27.8	24.7	.....	12.6

TABLE NO. 2. GROWTH IN NATURAL GAS HOUSE HEATING INSTALLATIONS.

Large increases in house heating installations between July 1, 1941, and July 1, 1940, were reported by the leading 15 of those natural gas companies which submitted figures.

Company	*Increase*
Pacific Gas & Electric Co. (Calif.)	8,625
Atlanta Gas Light Co. (Ga.)	2,280
Equitable Gas Co. (Pa.)	1,397
Public Service Co. of Colorado — Denver Dist. (Colo.)	1,379
Dayton Power & Light Co. (Ohio)	1,345
Gas Service Co. (Kan.)	1,103
Michigan Consolidated Gas Co., Grand Rapids (Mich.)	915
Central Illinois Light Co. (Ill.)	892
Louisville Gas & Electric Co. (Ky.)	677
Public Service Co. of Indiana (Ind.)	541
Memphis Light, Gas & Water Division (Tenn.)	534
Iowa Power & Light Co., Des Moines (Iowa)	472
Peoples Natural Gas Co. (Minn.)	469
Peoples Natural Gas Co. (Iowa)	442
Hope Natural Gas Co. (W. Va.)	354

132,069 central heating installations connected to their lines on July 1, 1941, an increase of 17,733 or 15.5% as compared with the preceding year. During the year ending July 1, 1941, these companies sold 27,222,129,000 cu. ft. of gas for central house heating, an increase of 11.8% over the previous 12 months.

Very few reports were received from some of the important states where natural gas has been available for many years and in which thousands of homes are heated by gas.

A few natural gas companies reported slight decreases in installations served, but most of the companies reported satisfactory increases. The companies showing a drop in installations were generally those with a very slight degree of saturation.

The average saturation of all reporting natural gas companies was 7.32% on July 1, 1941, as compared with 6.67% on July 1, 1940. These figures would undoubtedly be considerably higher if reports had been received from several of the larger companies which have been distributing natural gas for a number of years.

Complete reports from 83 natural gas companies indicate they were serving 10,854 building heating installations on July 1, 1941, an increase of 1765, or 19.4% over July 1, 1940. During the year ending July 1, 1941, 14,774,172,000 cu. ft. were sold for building heating, an increase of 10.7% over the previous year.

Manufactured Gas: Reports from 135 manufactured and mixed gas companies serving 6,595,323 domestic customers, of about 65% of the total manufactured gas customers in the country, indicate that these companies had 101,581 central heating installations connected to their lines on July 1, 1941, an increase of 14,433, or 16.6%, over July 1, 1940. During the 12 months ending July 1, 1941, these companies sold 31,206,073,000 cu. ft. of manufactured and mixed gas for house heating, an increase of 2.2% over the previous 12 months. The most pronounced increase during the year was registered in gas design jobs which gained 11,225, or 23.1%. The increase in conversion burner installations was 8.3%. On July 1, 1940, gas designed jobs constituted 58.9% of the total installations reported, and on July 1, 1941, this percentage was 55.7%.

Twenty-one manufactured gas companies showed losses in the total number of house heating customers served. The industry as a whole, however, registered a pronounced gain due to substantial increases on the part of some companies. The largest increase was reported by the Public Service Electric & Gas Co. which recorded a gain of 2,504 installations, an increase of 28%.

Complete reports from 88 manufactured gas companies indicated 7323 building heating installations connected to their lines as of July 1, 1941, an increase of 1069 or 17.1% over the previous year. Gas sold to these installations during the 12 months ending July 1, 1941, amounted to 2,857,519,000 cu. ft., an increase of 13.8% over the preceding 12 months. Many manufactured gas companies having only a few building heating installations included such jobs under house heating in their reports.

The manufactured and natural gas companies reported increases in all types of eequipment including gas designed and conversion jobs, boilers and furnaces. However, straight gas design jobs showed a larger percentage increase than did conversion burners.

In natural gas territory, gas designed installations were 58.5% of the total on July 1, 1941. In manufactured gas territory, gas designed installations were 58.9% of total installations on July 1, 1941.

Building Househeating Sales in St. Louis

AN ASSET in advancing sales of gas burner conversion and new-burner units for househeating in St. Louis, Mo., during 1941 was a direct-mail booklet entitled "Let's Talk About Your Neighbor." Fifteen hundred of these, sent out over a period of a few months, resulted in 772 new househeating accounts for 1941 over the 1940 figure. Laclede Gas Co. designed the booklet as an effective argument against the general presentiment that gas costs are far too high for average incomes.

The Laclede booklet is a 12-page folder "personalizing" gas heat through the medium of pictures taken at random of gas heated homes in all sections of the city—from those with an average income of $25 per week all the way to $100 a week. A crew of photographers took more than 50 photographs to make up the booklets, for providing proof for the slogan "your neighbors proved the low cost of gas heat." With 41 photos of all types of St. Louis dwellings, the book emphasizes the fact that during 1940, more than 1000 gas customers of the city heated their homes for less than $84 for the eight-month season, while slightly more than 50% of the entire 5672 gas-heat users of the city enjoyed fully automatic gas heating during the winter for less than $100. The gas heated homes represent all sections of St. Louis, and the homes of people in all walks of life.

"We were reasonably certain that by photographing homes at random, and publishing the actual cost figures for each home, that every prospect will find the home of someone he knows mentioned," E. L. Ramsey, manager of the customer service department, pointed out.

Most gas heat prospects reading the book are asked to look for the photograph of a home similar to their own in size and architecture — whereupon the figures for cost included assume a heavier importance in the prospect's mind. Testimonial sentences from gas users at random are quoted on one page, all signers being prominent civic leaders or well known neighborhood boosters.

■ ■

New Natural Gas Rates In Eureka, Calif., District

The Pacific Gas and Electric Co., San Francisco, Calif., has announced new rates for natural gas in the Eureka, Calif., area, effective January 1, 1942. The new schedule is applicable to natural gas supplied to domestic and general service customers with heating value of 950 to 1050 B.t.u. per cu. ft., and under conditions approved by the Railroad Commission.

The new rates are 90¢ for the first 200 cu. ft. or less per meter per month in incorporated territory, and $1.10 in unincorporated territory; 13.3¢ per 100 cu. ft. for next 2800 cu. ft.; 12.5¢ for next 2000 cu. ft.; 9¢ for next 5000 cu. ft.; 7.5¢ per 100 cu. ft. for next 10,000 cu. ft., and 6.5¢ for all over 20,000 cu. ft. per meter per month.

"Fun in the Kitchen" Film Is Produced by P. C. G. A.

"FUN in the Kitchen," a natural color motion picture with complete synchronized sound, is the Pacific Coast Gas Association's recent vehicle to glamorize, publicize and dramatize the merits of the modern gas range.

Over a year ago the idea was conceived by the P. C. G. A. Sales and Advertising Section. The film, with a cast which features Don Wilson, of Jello fame; Hedda Hopper, Hollywood columnist; and Mantan Moreland, negro character actor, carries an educational message, presented in an entertaining manner.

Writing and filming of "Fun in the Kitchen" was done by A. C. Joy and O. R. Doerr of Pacific Gas and Electric Co., and J. S. Spaulding of Southern California Gas Co., and Clifford Johnstone, managing director, P. C. G. A. Gladys Price, home service director of Southern California Gas Co., selected the recipes to be used.

Practically all Pacific Coast and many eastern gas companies have purchased prints of the film which can be purchased direct from the producer, The Rodney Gilliam Co., 7904 Santa Monica Blvd., Hollywood, Calif.

■ ■

Equitable Gas Co. Movie Shows Construction Program

A movie produced by the Equitable Gas Co., Pittsburgh, Pa., shows the $6,000,000 construction program to increase the company's production and transmission capacity in progress this winter.

Three activities are brought out in particular detail. These are (1) the drilling of 250 gas wells in the company's gas-producing properties in Kentucky and West Virginia; (2) the digging of trenches and laying of pipes for more than 100 miles of new pipe line; (3) the enlarging and building of compressing stations at eight locations on the transmission system.

In Pittsburgh-district areas where gas-producing sands previously have been exhausted, 4,000,000,000 cu. ft. of gas has been stored by special compressors for release during peak load periods.

■ ■

Natural Gas Serves Largest Housing Project in Arkansas

Natural gas has been selected by the United States Housing Authority for the four big jobs—cooking, refrigeration, heating and hot water heating—for Arkansas' newest and largest housing project, the Silver City Courts in North Little Rock.

The project, which cost more than $500,000, consists of 27 buildings having 149 apartments. The buildings cover eight square blocks. Each apartment—two, three and five rooms—is equipped with an Electrolux gas refrigerator, an automatic gas-fired water heater, and a modern gas range. All of them are heated by circulating gas heaters. The fuel is supplied by Arkansas-Louisiana Gas Co., Shreveport, La.

■ ■

New Mexico Communities Get Gas Rate Reductions

The New Mexico State Public Service Commission has announced gas rate reductions estimated to save consumers in 15 New Mexico towns nearly $60,000 annually. The new rates, negotiated with the New Mexico Gas Co., Santa Fe, and the New Mexico Eastern Gas Co., of Clovis, Carlsbad and Lovington went into effect January 1, 1942.

The Southern Union System

Educates Employee and Consumer

NATURAL gas companies faced with the problem of giving a quick course of education in the gas business to new employees, hired to take the places of men drafted for military service, are referred to the case of the Southern Union Gas System and its Employees' Manual.

Employees of the Southern Union System, which operates natural gas companies in New Mexico, Texas, Oklahoma and Arkansas, know more today about the workings of the System than they have ever known in the past. And that statement includes not only employees with years of service but also those new employees who are filling in for workers now in the Army. Moreover, they have the knowledge in such a form that they can pass it on readily to gas consumers.

In the words of Albert S. Johnson, president of Southern Union:

> "The women who work as cashiers, bookkeepers and secretaries are now able to explain to customers how our meters accurately measure the gas they use or even to describe how a meter is constructed. Service men now can outline the many factors, in addition to the original field price, that enter into the ultimate cost of gas to the consumer. Fitters and pipe line workers now are able to give their friends the true story as to the many benefits brought to their community and state by out-of-state capital invested in our business. Appliance salesmen are now able to give justification for our charging a minimum monthly bill for gas service."

This happy condition is the result of several months of study by these workers of the Employees' Manual prepared and distributed by the Southern Union System late last summer.

Contents of the Employees' Manual, a 56-page booklet, are based on questions most often asked by consumers about the natural gas business. The employees themselves provided the basic material for the manual. That is, employees throughout the System were asked to submit the questions most frequently asked by gas consumers, and answers to those questions were carefully worked out and correlated by the heads of departments in whose province they fell.

The manual is divided into six sections, as follows: Questions by a New Consumer; Questions About the Gas Meter; Questions About Gas and Safety; Questions About Service and Appliances; Questions About Gas Rates and Gas Bills; and Questions About the Gas Company.

The manual contains 112 questions and answers. These have an exceedingly wide range. The answers are stated as briefly and simply, yet as comprehensively, as possible. When copies of the manual were distributed, it was explained to employees that they should make no attempt to memorize the printed answers, but instead should so familiarize themselves with the ideas conveyed as to be able to answer in their own language almost any possible question that could be asked by a gas consumer.

Study of the manual was conducted under the leadership of district and town plant managers, group classes of employees being held in each town of the System. Inter-town and inter-district competitive matches were found to heighten the interest of employees. A typical contest of this kind took the form of an old-fashioned spelling match, teams of employees being asked questions in rotation with any individual who failed to answer correctly having to take his seat. The team with the largest number of persons still standing at the end of the match won.

After all employees in a district had an opportunity to study the manual thoroughly, they were given individual oral examinations on its contents. This examination was conducted by a representative from the central office, the same man giving examinations in all districts to insure impartiality and uniformity. This examination is, of course, the crux of the whole plan, and much credit for its success is due to the personal, man-to-man manner in which individual employees have been examined on their knowledge of the manual.

Employees showing by their answers to questions asked by the examiner that they substantially understand the contents of the manual receive a certificate from the company. Each employee earning such a certificate also receives, in addition to his regular salary, a monthly bonus of $2.50. This bonus will be continued until and unless the employee fails to pass a second examination to be given some months after the first one. The entire plan is voluntary, but all employees of Southern Union are participating in it.

The manual is a result of Mr. Johnson's firm conviction that whatever popular prejudice exists against utilities is due to lack of knowledge of the real facts concerning the utility business and that local employees have a continuing chance to do an important job of public education.

Carrying forward the story of GAS REFRIGERATION in 1942 › › › › ›

During the coming months (and very eventful months they may be) Servel advertising will continue to focus the spotlight on Gas Refrigeration in the pages of national magazines.

Advertisements, like the one shown here, have been designed to drive home—in a vivid and memorable way—the message of Servel's silence, long life, and exclusive "no moving parts" freezing system.

These advertisements employ the popular picture-story technique, which surveys show wins highest readership. They tell a human-interest story that starts with a dramatic situation and carries through to a happy conclusion.

At no time has it been more important than it is now to keep people reminded of the products you sell, the services you render. In 1942, Servel advertising will do its part in keeping Gas and Gas Refrigeration to the forefront of the public mind.

clique, then the possibility of Dakar passing into the hands of the Germans is greatly increased.

As I pointed out earlier, most of the army in French West Africa is made up of native troops with white officers. The opinion of these officers varies, a few being so anti-British that they are almost pro-German. In general, however, like the governor general, they are anti-German first and only anti-British afterward.

The Stain on the Tricolor

The navy always has taken a different position. For decades many French naval officers have had an inferiority complex in regard to the British navy. Further, the traditional rival—if not enemy—of the navy has been England. This attitude has existed since the days of Trafalgar. The feeling has been violently intensified by developments since the downfall of France. The internment of the French ships at Alexandria, the attack on the Richelieu during the bombardments of Dakar, and especially the destruction of a portion of the French fleet at Mers-el-Kebir, have awakened a profound feeling of resentment, amounting, in many cases, to hatred of England. Some French officers believe, or pretend to believe, the Germans when they tell them about the British firing on the men in the water at Mers-el-Kebir. Moreover, Darlan, long commander of the French fleet, has taken pains to see that men sharing his point of view reached the higher ports of command. This explains why many of the naval officers have indicated that they regard England as their principal enemy. The extreme attitude of some was expressed by one who told me, "There are stains on the French flag which can only be washed out in British blood."

With these diverse forces working upon the emotions of the French at Dakar, it is not difficult to understand why the fate of that port may be decided by some sudden and unexpected incident. This situation also explains why the British are bringing pressure to bear, but have not applied that pressure too intensely—and why they are reluctant to attack French merchantmen when convoyed by men-of-war.

The United States has used its good offices quietly and inconspicuously in an endeavor to improve the relationship between the British and French in West Africa. We have been fortunate in this regard in our representation at Dakar, since our consul, Thomas C. Wasson, is a man of marked discretion, good judgment and professional competence.

The possibility of the United States occupying Dakar for the duration of the war frequently has been envisaged in this country. Such a move undoubtedly would be resisted by the French. If, however, it were necessary for the Allies to take over Dakar to keep it from the Germans, intervention on the part of the United States undoubtedly would not be so bitterly resented as such a move by the British. It would be foolish, however, to believe that we would be welcomed with open arms. It is highly probable that conditions exist now, that we would have to fight, and fight hard, if we should decide to occupy Dakar. At a time when, at war with Japan, we need maximum naval strength in the Pacific, we must face that fact squarely. But, in spite of this disadvantage and the serious likelihood of Germany's taking Dakar develops, we ought to get there first.

THE SATURDAY EVENING POST

Men like the quiet type!..

1 Everything's happy-go-lucky now with Bill and me. But it wasn't always that way. Fact is, we were getting jumpy as cats. Every time our old refrigerator would start up, a spat was in the offing. "It's our nerves," said Bill. "It's the noise," I told him.

2 Gas change got no action. Then one night, Bill said half joking, "I have the answer." He mentioned Ice. It didn't take much to persuade him that the hammock was definitely out the answer. But, secretly, I was worried still.

3 The next day, I went over to see my friend, Sue Chapin. "What'll I do?" I asked her. "Bill" she demanded, "Get rid of that rumpus-raising refrigerator. Buy the quiet type. Men get enough noise all day. Just listen to my Servel!"

4 I couldn't get Bill to the Gas Company fast enough. "Imagine!" I said, "you can't hear a sound with Servel." Bill was skeptical. But not for long. The salesman showed him how a tiny gas flame takes the place of moving parts that cause noise and wear.

5 "Say, visitor," smiles Bill, "you've got something here! What sinners we've been. Thinking all along that all refrigerators had to be the same." Right then and there, we made up two minds to live in peace and quiet with a Servel!

IT FREEZES WITH NO MOVING PARTS!

NO MOVING PARTS in Servel's freezing system means NO MOTOR OR OTHER MOVING PARTS

MORAL: If you look at one refrigerator, look at Servel. If you look at more than one, look at Servel to see the difference.

SERVEL
ELECTROLUX
GAS
REFRIGERATOR

STAYS SILENT LASTS LONGER

FOR FARM AND COUNTRY HOMES—MODELS RUN ON BOTTLED GAS—TANK GAS—KEROSENE
Write for details to Servel, Inc., Evansville, Ind., or Servel (Canada) Ltd., 477 King St. W., Toronto, Ont.

ASSOCIATIONS

War Theme Tempers S.G.A. Meeting

A TENTATIVE program for the Southern Gas Association Meeting to be held at the Biltmore Hotel, Atlanta, Ga., February 9-11, has been announced by L. L. Baxter, secretary and treasurer of the Association. According to this program, the meeting will take place as follows:

Monday, February 9, 1942

General Sessions—10 a. m. President H. Carl Wolf, presiding.

Address of Welcome — Preston S. Arkwright, president, Georgia Power Co., Atlanta, Ga.

Convention Theme: "How Can the Gas Industry Contribute Most Effectively Toward Winning the War."

Address: "Conserving Materials"—George S. Hawley, president, American Gas Association, New York, N. Y.

Address: "Protecting Our Properties" — George F. B. Owens, assistant vice president, Brooklyn (N. Y.) Union Gas Co.

Sectional Luncheons—12:30 p. m.

Residential Gas Sales Conference—2 p. m. Chairman J. H. Warden, Oklahoma Natural Gas Co., Tulsa, Okla., presiding.

"Gas Service Promotion in War Time"—Davis M. DeBard, vice president, Stone & Webster Service Corp., New York, N. Y.

"Gas Refrigeration in the Future Plans of the Gas Industry"—George Jones, vice president and general sales manager, Servel, Inc., Evansville, Ind.

"Hot Water and Health"—G. M. Rohde, Jr., manager, research department, Ruud Manufacturing Co., Pittsburgh, Pa.

Open Meeting for Discussion.

Industrial Gas Sales Conference—2 p. m. Chairman H. G. D'Spain, Mississippi Public Service Co., Amory, Miss., presiding.

"Standby Equipment and Policies"—W. T. Ivey, Southern Natural Gas Co., Birmingham, Ala.

"Thoughts on Control Equipment for Industrial Gas" — R. M. Scoggins, Arkansas-Louisiana Gas Co., Shreveport, La.

"The Trend is to Gas for Commercial Cooking"—Harry Draper, J. C. Pitman Co., Lynn, Mass.

"How Commercial and Industrial Salesmen Can Contribute to Reselling the American Way of Business"—T. M. Salsberry, gas sales sponsor, Ebasco Sales Service, Inc., New York, N. Y.

Technical Gas Conference—2 p. m. Chairman H. N. Oldham, New Mexico Eastern Gas Co., Carlsbad, N. M., presiding.

Theme: "How It is Done in Our Company and Why."

"Reconditioning Pipe and Equipment During a National Emergency"—A. J. Goss, vice president and general manager, Chattanooga (Tenn.) Gas Co.

"New and Old Construction Methods We Use in Installing Mains and Services"—C. H. Palm, New Orleans (La.) Public Service, Inc.

"Possible Use of Radio Control of Gas Department Operations"—J. P. Neill, Southern Natural Gas Co., Birmingham, Ala.

"How We Locate Leaks and Make Necessary Repairs"—Bert Harper, Arkansas Gas Co., Fort Smith, Ark., and A. H. Mills, Knoxville (Tenn.) Gas Co.

"How We Control Pressure in Our Distribution System" — Glenn Jones, Mississippi Power & Light Co., Jacksonville, Miss., and O. F. Reynolds, Chattanooga (Tenn.) Gas Co.

"How We Condition Gas (Odorization, Removal of Hydrogen Sulphide, Dehydration, etc.)" — George Parker, Mississippi River Fuel Corp., St. Louis, Mo.

"Our Meter Shop Ideas and Practices"—M. J. Jackson, Arkansas-Louisiana Gas Co., Shreveport, La., and A. G. Guell, New Orleans (La.) Public Service, Inc.

"How We Use Cathodic Protection on Transmission and Distribution Systems" — R. H. Burdick, chief engineer, Southern Natural Gas Co., Birmingham, Ala.

Home Service Session—2 p. m.

"Eat We Must"—Cephalie Lewis, Atlanta (Ga.) Gas Light Co.

"Home Service Training for National Defense"—Sarah G. Eve, Georgia Gas Service, Augusta, Ga.

"New Ideas for Group Demonstrations"—Fannie Mae Izard, Mississippi Power & Light Co., Jackson, Miss.

"Home Service Scrap Book" — Joie Kammer, New Orleans (La.) Public Service, Inc.

Accounting Division—2 p. m.

President's Banquet and Dance—7:30 p. m.

Tuesday, February 10, 1942

General Sessions—10 a. m. President H. Carl Wolf, presiding.

Continuation of Convention theme with talks by H. A. Cloud, F. C. Smith, Eugene D. Milener and Emma Wood.

Luncheon—12:30 p. m. as guests of Atlanta (Ga.) Gas Light Co.

General Sessions—2 p. m.

"Personnel" — A. B. Patterson, president, New Orleans (La.) Public Service Co.

"Dr. I. Q."—John E. Bogan, Association of Gas Appliance and Equipment Manufacturers, New York, N. Y.

"See 'em and Sell 'em"—Carl Sorby, Geo. D. Roper Corp., Rockford, Ill.

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Indiana Gas Association Schedules Spring Meeting

The Indiana Gas Association will hold its annual meeting in Indianapolis on May 11-12 according to a recent announcement by H. W. Thornburg, secretary of the Association. The program committee is as follows: C. V. Sorenson, Northern Indiana Public Service Co., Hammond; E. G. Peabody, Citizens Gas & Coke Utility, Indianapolis; H. G. Horstman, Public Service Co. of Indiana, Indianapolis; and V. C. Seiter, Citizens Gas & Coke Utility, Indianapolis.

P. C. G. A. Issues Report On Fuel Gas Calorimetry

A REPORT of the Pacific Coast Gas Association's Calorimetry Standards Committee has appeared as a 64-page supplement to the 1941, Vol. 32, Proceedings of the Association, under the title of "Fuel Gas Calorimetry—Water Flow Method." This report, which has been under preparation since 1938, brings together and up-to-date all available information on the subject.

It includes a discussion of fuel gases, their combustion and heating value; principles of water flow calorimetry; the standard water flow gas calorimetor assembly, and its method of operation; reasons for, and development of the various corrections that are applied during a heating value determination; numerical value of humidity corrections for typical natural gas; description, specifications, and arrangement of equipment; and complete and detailed operating instructions for standardization and maintenance of apparatus, conduct of the actual test, and entry of records and computations.

The Committee was composed of representatives from all the operating gas companies in the P. C. G. A., and the California Railroad Commission, under the chairmanship of Guy Corfield, Southern California Gas Co. Reprints of this report are available from Clifford Johnstone, managing director. P.C.G.A., 447 Sutter St., San Francisco, Calif., at $1.00 a copy. A reduction is allowed on quantity orders.

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Mid-West Regional Sales Conference is Cancelled

The 16th Annual American Gas Association Mid-West Regional Gas Sales Conference which was scheduled to be held at the Edgewater Beach Hotel, Chicago, Ill., February 23-24, has been cancelled, according to an announcement made January 29 by J. W. West, Jr., secretary, Residential Section, American Gas Association.

The Mid-West Regional Gas Sales Council met January 27 in Chicago to discuss plans for the February Conference and it was decided, by majority vote to cancel the Conference. Instead of holding the Conference, a Round Table Forum for sales executives and sales managers is now being planned. This Forum will probably meet in Chicago during the month of March.

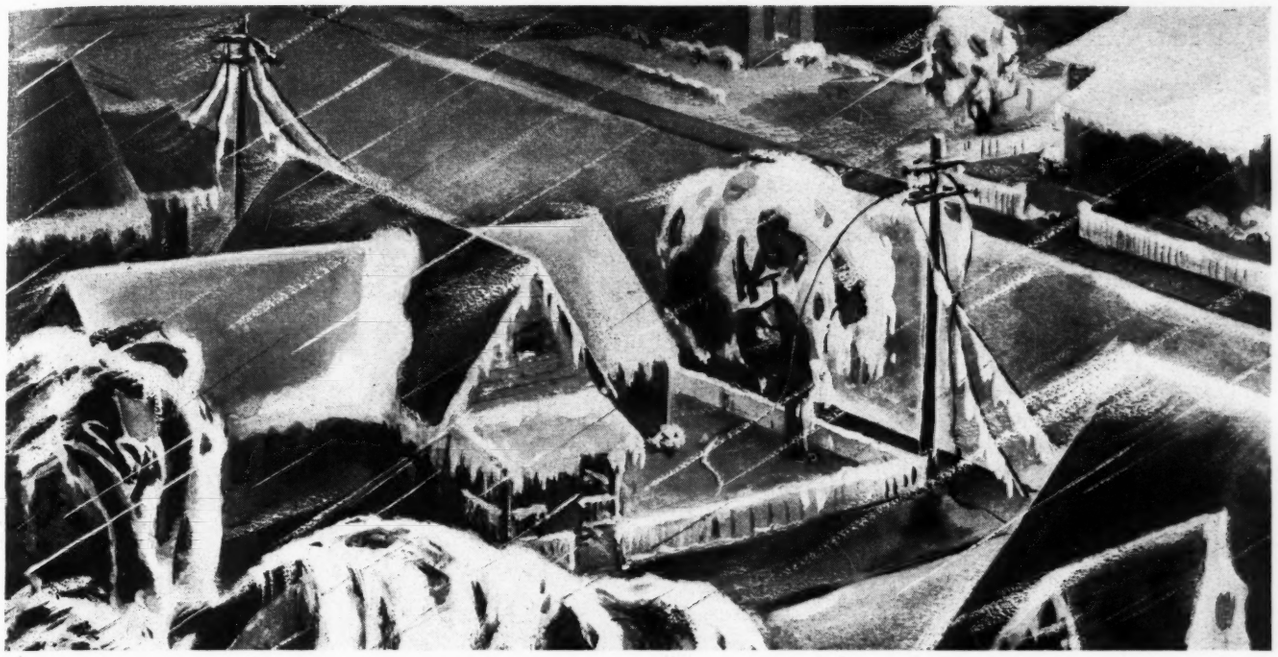
The Council voted to cancel the usual Conference in the belief that the holding of the meeting would be regarded by many people within and without the industry as inappropriate and inadvisable.

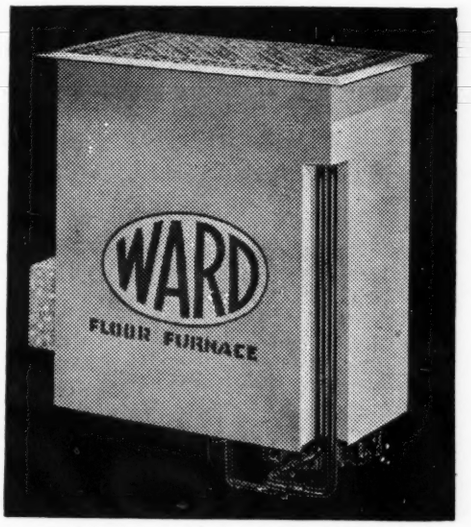
The February 23-24 dates were set up at a meeting of the Council in Chicago on December 5, before the outbreak of war, and since the National Program for the production of wartime items and equipment has increased to 50% of production facilities, many changes have occurred in the durable goods field which have bearing upon the advisability of holding the Conference as previously planned.

■ ■

S. C. M. A. Hi-Jinks Set for February 21

The annual Southern California Meter Association Hi-Jinks will be held on February 21. The association held a dinner meeting on January 15, at the French Cafe, Whittier, Calif. Speakers were John E. Sherborne, petroleum engineer, Union Oil Co. of Calif., who spoke on "Core Analysis," and Col. John W. Colbert, who spoke on "Civilian Defense."





A "Gas Man's Gas Furnace"

that's what the WARD is!

When flyers tell about a fellow being an "aviator's aviator" they mean he has talents that can be particularly appreciated by other folks who fly. On the diamond, a "ball player's ball player" pleases the boys in the dugouts as well as in the stands.

That's the kind of floor furnace the WARD is. It's an *all-gas* floor furnace, entirely self contained, that *operates exclusively on gas . . . your product.*

In these trying times when reliable service is doubly valued, WARD is a *dependable* furnace that uses only gas . . . *the dependable fuel.*

WARD'S bilt-in thermo-control . . . a thermostat inside the furnace, actuated by heat of the circulating air . . . saves fuel, provides proper warmth *economically.* And *economy* is an important word in our war vocabulary.

Yes, WARD is a floor furnace that gas men appreciate. Properly sized and installed in a well-chosen location, it will keep your customers convinced of the space heating economy and efficiency of the fuel you sell.

YEAR OF THE "BIG FREEZE"

In Amarillo they tell how the "ice age" descended on them that awesome November . . . how lines were down and juice was out . . . but how WARD Floor Furnaces, operating exclusively on gas never failed for a moment to bring warmth and comfort to homes they served.

WARD HEATER CO., LOS ANGELES

Thirty-two years of service to the gas industry

WARD FLOOR FURNACE

FACTORY REPRESENTATIVES: A. S. KINCAID, *Southern Manager*, P. O. Box 5, Dallas, Tex.; J. H. STUBBINS, 300 E. 68th Terrace, Kansas City, Mo.; H. C. SANDERSON, 207 Fulton Bldg., Pittsburgh, Pa.; L. E. KIRKPATRICK, 1700 15th St., Denver, Colo.; LEON M. TAYLOR, 3200 Main St., Dallas, Tex.

Wisconsin Association Program Set

A. F. HERWIG, executive secretary of the Wisconsin Utilities Association, which will hold a Gas Section Convention at the Schroeder Hotel, Milwaukee, Wis., March 16-17, has announced a tentative list of speakers accepting invitations to address the group.

Granting of the permit to introduce natural gas into Wisconsin to the Wisconsin Gas Transmission Co. (*GAS*, January, 1942, pg. 31) has added significance to the meeting, and O. W. Barenscher and C. A. Debell, chairmen of the technical and commercial divisions of the Gas Section, have made arrangements to schedule addresses and discussion conferences relative to the recent changeover.

George S. Hawley, president, American Gas Association, and president, Bridgeport (Conn.) Gas Light Co., will present the national viewpoint on current problems of the industry. Dean W. Flowers, general manager, Michigan Consolidated Gas Co., Muskegon, will speak on the advantages of natural gas to the public and to utility companies.

Watson E. Derwent, president, Association of Gas Appliance and Equipment Manufacturers, will tell the manufacturers' viewpoint on the supply of equipment and appliances. L. F. Seybold, president, Wisconsin Utilities Association, will speak on the industry's duties for the duration of the war and will also give statistical information on recent accomplishments of all branches of the utility in Wisconsin.

John E. Bogan, sales promotion manager, domestic range division, Association of Gas Appliance and Equipment Manufacturers, will talk on "Meeting the New Competition," and C. V. Sorenson, supervisor of new business, Northern Indiana Public Service Co., Hammond, will describe the procedure his company followed in developing an engineering and sales organization to build industrial, commercial and house heating loads with natural gas.

Sales promotion and advertising policies during the present emergency will be suggested by W. J. Grover, director of marketing, Surface Combustion Corp., Toledo, Ohio, and Prof. Otto Kowalke, University of Wisconsin, will deliver a paper on distribution problems of dry gas.

Round table conferences on emergency experiences and topics involving natural gas changeover are now being formed by the technical and commercial divisions, and other speeches dealing with priorities, defense of plants and distribution systems are now being prepared by these divisions of the Association.

■ ■

Oklahoma Utilities Elects Don S. Kennedy, Treasurer

Don S. Kennedy has been elected treasurer of the Oklahoma Utilities Association to succeed the late B. M. Lester, according to Miss Kate A. Niblack, secretary of the Association. Mr. Kennedy has served as treasurer of the Oklahoma Gas & Electric Co., Oklahoma City, Okla., since the passing of Mr. Lester, December 24, 1941, and was formerly employed in the accounting department of the company.

Mr. Lester, who had been with the company 31 years and was vice president and treasurer at the time of his death, served several terms as treasurer of the Oklahoma Utilities Association.

CALENDAR

February

Southern Gas Association and A. G. A. Southern-Southwestern Gas Sales Conference—Biltmore Hotel, Atlanta, Ga., February 9-11.

Southern California Meter Association Hi-Jinks—Whittier, Calif., February 21.

March

American Gas Association Industrial and Commercial Gas Sales Conference—Pittsburgh, Pa., March 12-13.

Wisconsin Utilities Association, Commercial and Technical Divisions, Gas Section, Annual Meeting — Schroeder Hotel, Milwaukee, Wis., March 16-17.

New England Gas Association, 16th Annual Business Conference — Hotel Statler, Boston, Mass., March 19-20.

Oklahoma Utilities Association—Biltmore Hotel, Oklahoma City, Okla., March 23-24.

April

Mid-West Gas Association Annual Convention—Sioux City, Iowa, April 13-15.

Gas Meters Association of Florida-Georgia—Savannah, Ga., April 19-21.

Southwestern Gas Measurement Short Course—University of Oklahoma, Norman, Okla., April 21-23.

May

Annual American Gas Association Natural Gas Section Convention — Roosevelt Hotel, New Orleans, La., May 4-7.

American Gas Association Distribution Conference — New Orleans, La., May 5-7.

Indiana Gas Association Annual Meeting—Indianapolis, Ind., May 11-12.

Pacific Coast Gas Association Technical Section Meeting — San Francisco, Calif., May 21-22 (tentative).

June

Canadian Gas Association, 35th Annual Meeting—Windsor Hotel, Montreal, Canada, June 4-5.

Pacific Coast Gas Association Sales and Advertising Section Meeting — San Francisco, Calif., June 4-5 (tentative).

Pacific Coast Gas Association Accounting Section Meeting—San Francisco, Calif., June 11-12 (tentative).

September

Pacific Coast Gas Association Annual Convention — San Francisco, Calif., September 28.

24th Annual Convention, American Gas Association — San Francisco, Calif., September 29-October 1.

November

Mid-Southwestern Gas Association Meeting—Dates not definite.

Servel, Inc., Holds Gas Air Conditioning Symposium

LOUIS RUTHENBURG, president of Servel, Inc., Evansville, Ind., was principal speaker when a group of utility company representatives participated in a symposium on air conditioning engineering at Evansville, Ind. The three-day meeting, conducted in collaboration with the Gas Air Conditioning Division of Servel, was held January 14-16, with John K. Knighton, manager of the division, acting as chairman.

The object of the symposium was to bring together the various specialists attending to make available to the industry as a whole the cumulative experience of these utility engineers as a practical means of finding answers to problems pertaining to air conditioning applications and installations.

Mr. Ruthenburg forecast the birth of a major new industry, that of all-year-round gas air conditioning, "ready to go places when the war is won." Dr. W. R. Hainsworth, vice president in charge of engineering for Servel, declared that plans must now be formulated for the post-war period.

Other speakers at the meeting included: B. A. Johnson, Peoples Gas Light and Coke Co., Chicago, Ill.; W. F. Friend and A. E. Vroome, both of Ebasco Services, Inc., New York, N. Y.; G. E. May, New Orleans (La.) Public Service, Inc.; C. A. McKinney, United Gas Corp., Houston, Texas; L. Bert Nye, Jr., Washington (D. C.) Gas Light Co.; S. S. Bailey, Houston (Texas) Natural Gas Co., and George S. Jones, Jr., vice president and general sales manager, Servel, Inc., Evansville, Ind.

■ ■

Approvals Expiring in 1942 Granted Year's Extension

The American Gas Association Laboratories Managing Committee has granted one year's extension for approvals expiring in 1942. This extension is permissible provided that no changes have been made in applicable standards affecting safety since the original approval was granted. The action was approved by the Committee on recommendation of the Approval Requirements Committee and all manufacturers of approved appliances and listed accessories notified.

A large majority of requirements in effect January 1, 1942, involve extensive modifications from those in existence five years ago. Preliminary study indicates that most equipment on which approval expires in 1942 will require re-examination in order to permit certification after that time. A study of existing requirements for the purpose of segregating those involving safety features is now being made and on its completion, full information will be available to permit a definite answer to all cases which may arise.

Further information may be obtained from R. M. Conner, Director, American Gas Association Testing Laboratories, 1032 East 62nd St., Cleveland, Ohio.

■ ■

Natural Gas Companies Will Issue Annual Report for 1941

The Federal Power Commission has issued No. 86 adopting, promulgating and prescribing for Classes A and B natural gas companies subject to the provisions of the Natural Gas Act, a form of annual report for 1941. The order provides that every natural gas company subject to the provisions of the Act shall file with the Commission the original and two copies duly executed on or before March 31, 1942.

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Perfect Pair!

FOR SERVICE TAP GAS PRESSURE REDUCTION HIGH PRESSURE TO OUNCES

These outstanding Fisher regulators guarantee safe, dependable and accurate regulation on service taps from high pressure transmission pipe lines. A Type 630 field regulator to make the primary reduction and a Type 730 service regulator to deliver a constant service pressure in ounces.

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Affords greater capacity, size for size, than any other regulator of its type now on the market. Construction features assure extremely accurate and dependable reduced pressure. Two interchangeable diaphragm assemblies available for reduced pressure ranges of 5 to 30 lbs. and 25 to 150 lbs. Valve disc and orifice readily accessible without breaking pipe connection. Special composition diaphragm is impervious to the action of gases assuring long trouble-free service. All pivots and bearings are stainless steel. Suitable for inlet pressures up to 1000 lbs. Available with ¼", ⅜" or ½" orifices. Furnished with screwed globe bodies in sizes 1", 1¼", 1½", 2"

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Provides unusually large capacity on all service applications. Assures constant reduced pressure even though flow demands may be high. Eliminates complaints resulting from inadequate pressures. Available with or without built-in safety relief valve and/or safety shut-off feature. May be installed in any position without affecting operation. Diaphragms and valve discs are carefully selected composition to provide long trouble-free service. Orifice and disc are easily inspected or replaced without breaking pipe connection. Reduced pressure ranges: sizes ¾", 1", 1¼" — 2" W. C. to 7 lbs.; sizes 1½" and 2" — 3½" W. C. to 3 lbs. Suitable for inlet pressures up to 150 lbs.

TYPE 630 and SERIES 30 regulators are completely illustrated and described in Bulletin 43D. Write for your copy today.

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ABSTRACTS

ON THIS PAGE are published abstracts of papers presented before recent meetings of the gas industry's associational groups. These abstracts are published to save the reader's time, to furnish him with capsule information on contributions to gas association programs. The publishers of GAS will gladly forward requests for further information to authors of papers abstracted in this department.

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• ABSTRACTS which are listed below are of papers presented at various associational meetings throughout the year 1941. Further information regarding the subjects covered may be obtained by addressing requests to GAS.

Gas Pipe Line Flow Calculator—C. F. deMey, rate engineer, Columbia Engineering Corp., Columbus, Ohio. This calculator is the outgrowth of casual experience with pipe line capacity calculations which led to an interest in the possibility of short cutting the methods commonly used in the solution of the Weymouth gas pipe line flow formula. While this formula is relatively simple it contains the pressure factor $(P_1^2 - {}_2^2)^{1/2}$ and therefore, in common with other flow formulae, does not lend itself readily to slide rule operations. In the calculator the two pressures are individual factors which enter directly into the calculator settings, thus eliminating the hitherto most troublesome feature of slide rule solution. Other features have been added, enabling the solution of practically every type of gas pipe line capacity problem. Only the text of this paper was originally presented, because of size and cost. The complete paper, including three appendices, can now be obtained from E. H. Poe, Secy., Natural Gas Section, A.G.A., 420 Lexington Avenue, New York, N. Y., at a cost of 50¢.—A.G.A. Natural Gas Section Convention, Dallas, Texas, May, 1941.

Selecting Refractories for Gas-Fired Industrial Furnaces—J. J. Offutt, ceramic engineer, A. P. Green Co., Mexico, Mo. The designer of a furnace must be familiar with the various types of fuels which may be used as a heating means, and also with the characteristics of various types and qualities of refractories. Refractories have to resist excessive temperatures, rapid temperature changes, heavy loads at high temperatures, slagging, abrasion, and chemical attack. Various types of firebrick and special products, and methods of installation, are briefly described. — Mid-West Industrial Gas Sales Council, Rock Island, Ill., May, 1941.

What's Ahead for the Home Appliance Industry? — Arthur P. Hirose, Director of Market Research and Promotion, McCall Corp., New York, N. Y. Topics discussed are: (1) What caused the 1941 appliance boom? (2) What will happen to appliances in 1942? (3) Clues to 1942 conditions. (4) Will 1942 be a seller's or a buyer's market? (5) What can be done by dealers in 1942? (6) The importance of cultivating replacement sales. (7) New importance in repair and service. (8) After the defense effort. McCall's 1942 plans on home appliances are outlined.—Delivered before the Sixth Annual Conference, International Association of Electrical Leagues, Hotel Raleigh, Washington, D. C., Nov. 13, 1941.

The Future of the Gas Heating Equipment Business from the Standpoint of the Manufacturer—C. B. Phillips, vice president, Surface Combustion Corp., Toledo, Ohio. Due to lightning-like changes in Washington with respect to the defense program, it is very difficult for anyone to predict just what may be expected so far as shipments of equipment are concerned. If the war situation does not become more aggravated over the next six or nine months, the manufacturer should be able to produce some reasonable volume of non-defense equipment. At best it would not be more than 50% of normal, and on a 50% basis of non-defense production this would not be too far off a good normal year. Utilities should plan their budgets for gas heating equipment as far ahead as possible, considering the slowness and uncertainty of future deliveries. Even priority orders are taking much longer than people anticipate. Continue advertising in order to educate customers to buy and keep buying, but expect delays in deliveries. This address presented at the Metropolitan House Heating and Air Conditioning Council, held at A.G.A. headquarters, October 15, 1941.

The Use of Wetting Agents in Dehydrating Tar—Dr. T. A. Mighill, research chemist, Blackstone Valley Gas & Electric Co., Pawtucket, R. I. Any agent which, added to an emulsion of water in an organic medium, will lower the surface tension at the interface so that the drops will expand and fuse with adjacent drops can be termed a "wetting agent." Some 20 different wetting agents were tried. Starting with a 75% to 78% water emulsion, and adding 0.4% of wetting agent, final emulsions of 10.5% to 15% water were obtained. A short discussion of prices and economics follows. This paper was presented before the New England Gas Association, Operating Division Meeting, Hartford, Conn., October 8, 1941.

How Recent Developments of Water Conditioning Technique are Combating Industrial Water Problems—R. E. Hall, director, Hall Laboratories, Inc., Pittsburgh, Pa. Water treatment is a great game of "put and take." There are three main divisions of water treatment: (1) To make water safe, wholesome and pleasing for community use; (2) for general industrial use; (3) to meet the specific requirements of different processes and operations. An outline is given of each method and its important sub-divisions. —A.G.A. Joint Committee Conference of Production and Chemical Committees, New York, N. Y., May, 1941.

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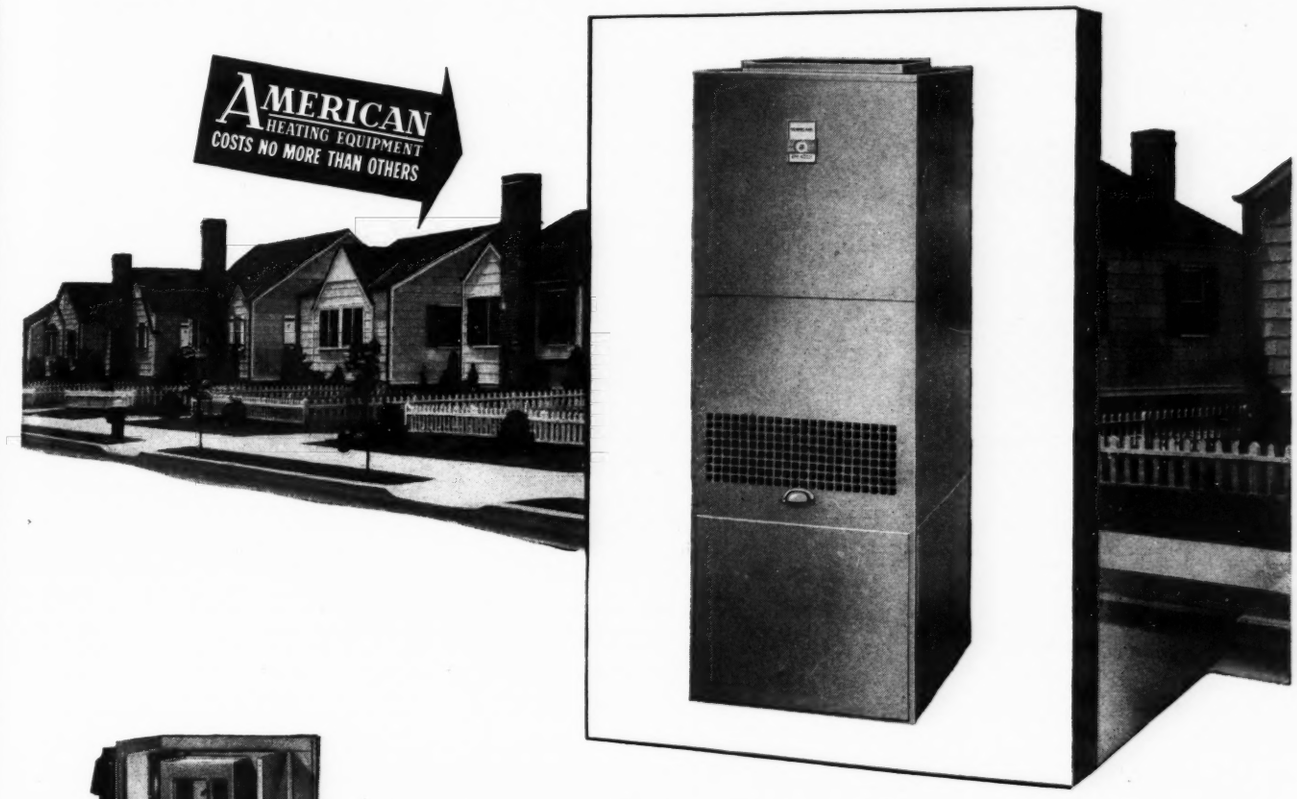

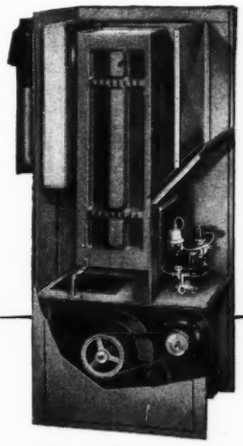

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Heating Element and Radiator of welded heat-resisting steel. The standard controls include main shut off valve, gas pressure regulator, gas valve, automatic pilot, blower-limit switch and plain thermostat. Blower is quiet double inlet type with self-aligning bearings. Filter with rack, optional. Btu capacity at register, 39,600. Width 22" — Height 60½" — Depth 25⅛".

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ENGINEERED to specifications of various Governmental agencies, the new Wyandotte (SUV-55) meets the special needs of small, low cost defense housing—with or without basements, for new building or modernization.

Ease of installation is assured by its flexibility of design, permitting return air to enter from left, right or front; by slip joints for quick jacket assembly; by two control combinations. Its small size and new jacket in suede finish Placid Blue are particularly suitable for first floor installation in hall, closet, kitchen or other convenient space.

New construction features make the Wyandotte extremely efficient, quiet, economical in operation and dependable.

The new **SUNBEAM** name plate on the jacket is assurance of the undivided responsibility of the world's largest Heating Organization.

For modernization, time payments are available in accordance with U. S. Government regulations.

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PEOPLE

W. E. Leverette, sales manager of the Nashville (Tenn.) Gas and Heating Co., has been made assistant to the president in a recent order issued by **S. E. Linton,** president. **M. D. Riggan** is now supervisor of domestic sales and **Terry Hart** is supervisor of commercial and industrial sales for the company.

W. E. LEVERETTE

• •

Filling the vacancy caused by the resignation of **N. T. Sellman,** assistant vice president of the Consolidated Edison Co. of New York, Inc., **Norman B. Bertolette,** president and general manager of the Hartford (Conn.) Gas Co., was recently appointed a member of the American Gas Association Laboratories Managing Committee. He is the first executive from the New England area to become a member of this group. Mr. Bertolette's activities in the gas industry and in the American Gas Association are well known as the result of more than 30 years' experience in utility company management and operation. A graduate of Drexel Institute of Technology in 1911 with a mechanical engineering degree, Mr. Bertolette was first employed as a cadet engineer with the Philadelphia Suburban Gas and Electric Co., Jenkintown, Pa. He later became engineering assistant, division engineer, and division manager of this company. He also served for two years as assistant to the general superintendent of the American Gas Co. of which the operating company was a subsidiary. Following its acquisition by The United Gas Improvement Co. in 1926, he was promoted to district manager of the Philadelphia Electric Co. From 1929 to 1935 he served as president of the Harrisburg (Pa.) Gas Co. Later in 1935 he was appointed president and general manager of the Hartford Gas Co.

• •

Norman M. Albert, assistant engineer and superintendent of the standardization laboratory of the Pacific Gas and Electric Co.'s Bureau of Tests and Inspection in Emeryville, Calif., has been appointed to the faculty of the University of California's Defense Training School.

A. W. Conover, vice president and general manager of Central Ohio Light & Power Co., has been elected president and chairman of the board of the North Shore Gas Co. of Chicago, effective February 1. Mr. Conover was vice president and general manager of the Oklahoma Utilities Co., Bristow, Okla., from 1930 to 1935, at which time he was made vice president and general manager of Colorado Central Power Co., Golden, Colo., where he served until April, 1939. He was vice president and general manager of Central Ohio Light & Power Co., Findlay, Ohio, where he has served until his election to his present position. In 1939 he was awarded the B. C. Forbes Award and the Rocky Mountain Electrical Association Award for that year.

A. W. CONOVER

• •

Clarence S. Goldsmith, for the past two years assistant engineer of distribution in charge of mains and services for the Brooklyn (N. Y.) Union Gas Co., has been appointed engineer of distribution. Mr. Goldsmith, a graduate of Columbia University, has been with the company 21 years. Other recent advancements in personnel include the following: **Samuel Green,** who joined the company in 1912, has been appointed assistant engineer of manufacture; **Clyde E. Cheeseman,** a graduate of Syracuse University, who has been with the company 31 years, has been appointed assistant to engineer of manufacture; **Bertin R. Bisbee,** a University of Minnesota graduate who was first employed by the company in 1928, is now superintendent of the Greenpoint Works.

• •

Harold Vagtborg, director of the Armour Research Foundation, Chicago, Ill., has announced the following research staff appointments: **Dr. Raymond G. Spencer** has been appointed chairman of metallurgical research; **George Stern** has been appointed metallographer; **Robert C. Bour** has joined the chemical engineering staff; **Dr. William H. Earhart** has joined the staff of the metallurgy section as ceramist; **Clark E. Thorp** has joined the staff of the chemical engineering section; **Dr. Clyde W. Leaf** has been appointed organic chemist.

• •

Prof. Henry Emmett Gross, associate professor of petroleum engineering at Texas A. & M. College since 1938, has been appointed associate petroleum production analyst in the Chicago office of the Office of Petroleum Coordinator. Prof. Gross was formerly a faculty member of the University of Oklahoma and was employed by the Shell Oil Co.

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George E. Griffin, Jr., has been appointed superintendent of the meter repair division of the Brooklyn (N. Y.) Union Gas Co. He succeeds **Emil J. Bartel,** who retired recently. Mr. Griffin has been with the company 18 years.

• •

Announcement is made by General Controls Co., Glendale, Calif., of the appointment of **L. E. (Rusty) Wetzell** as manager of the company's Cleveland, Ohio, branch office. Mr. Wetzell, a graduate engineer of Purdue University, has, for the past several

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For wartime emergency-breaks in pipe lines, this Doublex Simplex Split Sleeve will enable you to make quick, economical, effective repairs. You should have a supply of several of each different size that you might need. Thousands in use, some for 13 years. Order now from shipping point nearest you as follows: Birmingham, Dallas, Kansas City, Los Angeles, Minneapolis, San Francisco, Pittsburgh.

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CHICAGO MINNEAPOLIS NEW YORK CITY CLEVELAND PITTSBURGH

years actively engaged in sales engineering work for the company. In his new position Mr. Wetzell is in charge of sales and service in Ohio, West Virginia and portions of Pennsylvania, Kentucky and Western New York.

• •

Thomas R. Weymouth, who recently was appointed consultant on natural gas by the OPC, was president of the Oklahoma Utilities Association in 1930 and for several years served as president of the Oklahoma Natural Gas Co., Tulsa, Okla. He presided over the Natural Gas Section convention of the A.G.A., at Tulsa, Okla., May 8-11, 1939, as chairman of the section. Later Mr. Weymouth became vice president of the Columbia Gas and Electric Corp., of New York, N. Y. He retired from that position after 38 years in the natural gas industry. Last year Mr. Weymouth was recipient of the Charles A. Monroe award, bestowed annually by the American Gas Association on the individual who had made the most outstanding contribution toward the advancement of the industry. The award was in recognition of work in developing formulas for compiling the actual gas delivery capacity and for ascertaining power requirements of gas compressors.

T. R. WEYMOUTH

• •

Dr. P. K. Frolich, director of the chemical division, Esso Laboratories of the Standard Oil Development Co., Elizabeth, N. J., has been elected president of the American Chemical Society for 1943. Dr. Frolich, who is known for his work in the development of synthetic rubber, took office as president-elect January 1, 1942, when **Dr. Harry N. Holmes,** head of the department of chemistry at Oberlin College, became president, succeeding **Prof. William Lloyd Evans** of Ohio State University.

• •

Dr. Howard E. Fritz, manager of the synthetics division of The B. F. Goodrich Co., Akron, Ohio, for the past seven years, has been named director of research for that company by **John L. Collyer,** president. Dr. Fritz joined the company in 1925 after serving on the engineering school faculty of Ohio State University, Columbus, Ohio, where he was graduated in 1914 with a degree of B. S. in chemical engineering and received his doctor's degree in 1921. Dr. Fritz succeeds **James W. Schade,** company research director since 1925, who has retired.

• •

Henry C. Judd has been elected treasurer of the Coast Counties Gas & Electric Co., Santa Cruz, Calif., succeeding **George J. O'Brien,** who recently became assistant to the president of Standard Oil Co. of California, with headquarters in Los Angeles.

• •

W. H. Park, district manager of the Pacific Gas and Electric Co., Berkeley, Calif., was recently elected president of the Berkeley Chamber of Commerce.

• •

The Standard Oil Co. has awarded service pins to 105 of its employees in San Francisco, in recognition of continuous service. Heading the list was **E. J. Macfarlan,** assistant to the manager of the foreign trade department, with a service record of 40 years. Seven local employees honored for 35 years service were: **George H. Gisin, George L. Gould, Arthur C. Grant, William R. Jaques, John E. Pehrson, Harold J. Transue** and **George J. Wyllie.** More than 9000 employees of the company have earned gold service pins for continuous service.

• •

L. A. Elsener, district manager of the Chicago Bridge & Iron Co., was inducted as president of the Engineers' Club of San Francisco at the annual meeting January 15. **H. H. Hall,** chief engineer of Standard Oil Co. of California, retiring president, turned the gavel over to Mr. Elsener. Other new officers inducted were **J. Marshall Evans,** Standard Oil Co. of California, vice president; **Russell P. Hastings,** retired civil engineer of San Francisco, secretary; and **J. W. Mahoney,** General Electric Co., treasurer.

• •

Charles J. Reilly, representative of Cribben & Sexton Co., has been appointed a business specialist with the Office of Price Administration. After a brief visit to Washington, he will assume duty with the San Francisco office of the O. P. A. Mr. Reilly's work will be with the Cookery and Heating Division.

• •

Clyde Clack, who has been manager at McKinney, Texas, for the Community Natural Gas Co., has been made manager at Durant, Okla., and will supervise gas service at Achille, Caddo and Durant, Okla.

Tom Hallinan, for the past seven years connected with the mining supply business in the Rocky Mountain region, has joined the sales staff of the E. D. Bullard Co., safety equipment specialists. Mr. Hallinan's territory will extend from South Dakota as far south as El Paso, Texas. He will make his new headquarters in Denver, Colo.

TOM HALLINAN

• •

The election of **John M. Franklin,** president of International Mercantile Marine Co., and president of United States Lines Co., to the board of directors of the Worthington Pump and Machinery Corp., Harrison, N. J., has been announced. Mr. Franklin, a gradnate of Harvard University, served as a captain overseas in the American Army in the first World War.

• •

Leo T. Crowley, president of the Standard Gas & Electric Corp. and a director of the Philadelphia Co., has been elected president of the Philadelphia Co.; **Franklin F. Schauer** has been named president of Equitable Gas Co., and Pittsburgh and West Virginia Gas Co. **D. P. Hartson** has been elected vice president and general manager of the two companies. Since 1920 Mr. Schauer has served as assistant general manager and

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Push Pipe With GREENLEE Hydraulic Pushers

Today when every minute counts in new construction and maintenance work you can save vital hours in your pipe laying with Greenlee Hydraulic Pipe Pushers. There's no extensive trenching, no pavement cutting, no tunneling, no back filling, no repaving. Only a short trench is dug to accommodate the pusher and pipe. No extra power equipment of any type required . . . the powerful hydraulic units do the actual pushing. The No. 790 Pusher, with a 20-ton hydraulic unit will push 1¼ to 4-inch pipe. The No. 795 Pusher with a 75-ton hydraulic unit will handle large drainage ducts, concrete sewer pipe, and pipe beyond 4-inch.

One Man Can Operate

One or two men pumping the handles can easily develop power to push pipe under sidewalks, streets, highways, embankments, and railroad tracks. Greenlee Pushers are rugged and powerful enough to stand long gruelling service, yet they are compactly built into one unit and are easily carried to the job and set up. With these fast powerful pushers you can lay more pipe with less manpower and cut labor costs on every job.

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general manager of Equitable Gas Co., and Mr. Hartson has served as gas engineer superintendent of production and transportation, manager of the system development department, and operating manager of Equitable Gas Co., and Pittsburgh and West Virginia Gas Co.

• •

The Federal Power Commission has announced the election of **Commissioner Basil Manly** as its vice chairman for the coming year. Mr. Manly succeeds **Commissioner Claude L. Draper,** who has held the office of vice chairman for the past two years. Commissioner Manly has been a member of the Federal Power Commission since 1933, and was previously vice chairman from 1933 to 1936. In 1938 he was appointed by President Roosevelt as vice chairman of the National Defense Power Committee, in which capacity he participated in devising plans for war-time mobilization and electric power supply. As Commissioner-in-Charge of the National Power Survey and Electric Rate Survey in 1933-1936, he supervised plans and reports for both of these pioneer undertakings. He also served as chairman of the Committee on Generation and Distribution of the National Association of Railroad and Utilities Commission in 1939.

• •

W. A. Hudson has been appointed sales manager of the Chattanooga (Tenn.) Gas Co. Previous to his association with that company, he was domestic sales manager of the Laclede Gas Light Co., located in St. Louis, Mo.

Albert W. Humm has joined Hixson-O'Donnell Advertising, Inc., New York, to organize and manage a public utility and home appliance department. Mr. Humm was advertising and sales promotion manager of Standard Gas Equipment Corp., New York, N. Y., manufacturers of domestic and hotel ranges and equipment, for 20 years. During this period he originated many sales promotion and advertising programs for both the manufacturer and the utility and was also active in the work of the American Gas Association. After leaving Standard Gas Equipment Corp., Mr. Humm became associated with the advertising agency of Williams & Saylor, Inc., as director of the gas merchandising division. In this capacity he created and developed the first national water heater program of the Association of Gas Appliance and Equipment Manufacturers.

• •

Earl Fisher, vice president, Pacific Gas and Electric Co., has been appointed chairman of the Arrangement Committee of the American Gas Association Convention.

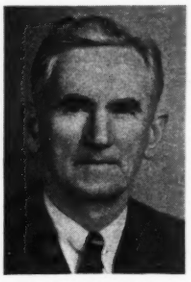
• •

F. R. Bender, for many years manager of the Berwick (Pa.) Gas Co., has been transferred to Pulaski, Va., as a manager of that office of the Virginia Gas and Utility Co. He is succeeded by **S. R. De Frese,** who comes to Berwick from Reesville, N. C. Mr. De Frese has been associated with the company for 14 years and spent nine years of that time as manager of the Reeseville plant and office of the organization.

Obituaries

C. R. Miller

C. R. Miller, superintendent of the utilization bureau of Portland (Ore.) Gas & Coke Co., and a 36-year veteran of the company, died January 19 in Salem, Ore., following a long illness. For more than 20 years he was a featured speaker and an active worker in the Pacific Coast Gas Association and during this time served as chairman of the following committees: technical committee, home service bureau committee, consumers' meters committee, appliance certification committee, customers' service committee, sales budgets committee, and industrial sales committee. Mr. Miller joined Portland Gas & Coke Co. as a meter inspector in 1906 and three years later was advanced to supervisor of collections. In 1917, he was named superintendent of the utilization bureau, which position he held until his illness forced him to retire a year ago.



C. R. MILLER

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A. C. Thompson

Arthur C. Thompson, 52, associated with the Reliance Regulator Co., Alhambra, Calif., as vice president and general manager since 1918, died December 5, 1941, of a sudden heart attack at the Pasadena Hospital. Mr. Thompson joined the company when his father, the late W. M. Thompson, took over the present company.

A. C. THOMPSON

• •

Adolph Edward Meier

First Lieut. Adolph Edward Meier, U. S. Army, 25-year-old son of Louis L. Meier, of American Stove Co., Pacific sales division, San Francisco, Calif., was killed in action in defense of his country in the Philippine Islands January 12. After graduation from high school, Adolph was awarded a scholarship to the University of California, where he received the degree of Bachelor of Science in 1939. His death is the first Philippine casualty recorded by the University of California. Besides his father and mother, Mrs. Celestine Meier, Adolph is survived by four younger brothers, three of which are now active in military service or training. Louis, Jr., is an Ensign in the U. S. Navy; John, 21, and Raymond, 15, are in the R. O. T. C. Bobby, 12, is the youngest son.

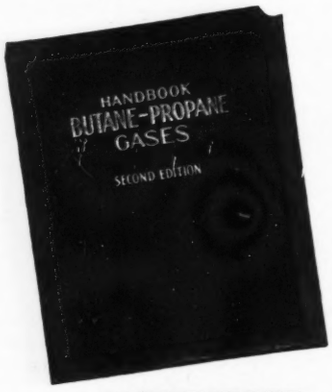
• •

Maurice A. Graham

Maurice A. Graham, 66, retired employee of Hope Natural Gas Co., Clarksburg, W. Va., died January 14, following a heart attack. He was employed by the Hope company for 36 years and retired five years ago.

HANDBOOK
BUTANE-PROPANE
GASES

415 Pages



CONTENTS: Semi-Bulk Distribution: Use of Butane in Buses: Combination Propane Operated Utility Plant: Use in Internal Combustion Engines: Design and Installation of Storage: Supply from Petroleum Refineries: Engineering Data on the Lower Olefins: Domestic Appliance Testing and Utilization: Economical Comparisons with Coal, Oil, Electricty, Producer Gas, Manufactured Gas: Town Plants: Manufacture from Natural Gas: Special Uses: Volume Correction Factors: Transportation: Use with Other Gases: Analysis and Testing: Properties of Mixtures: Bottled Gas Distribution: Bibliography: Central Plant Directory: Catalog Section.

SECOND EDITION (Latest Revision Nov., 1938)

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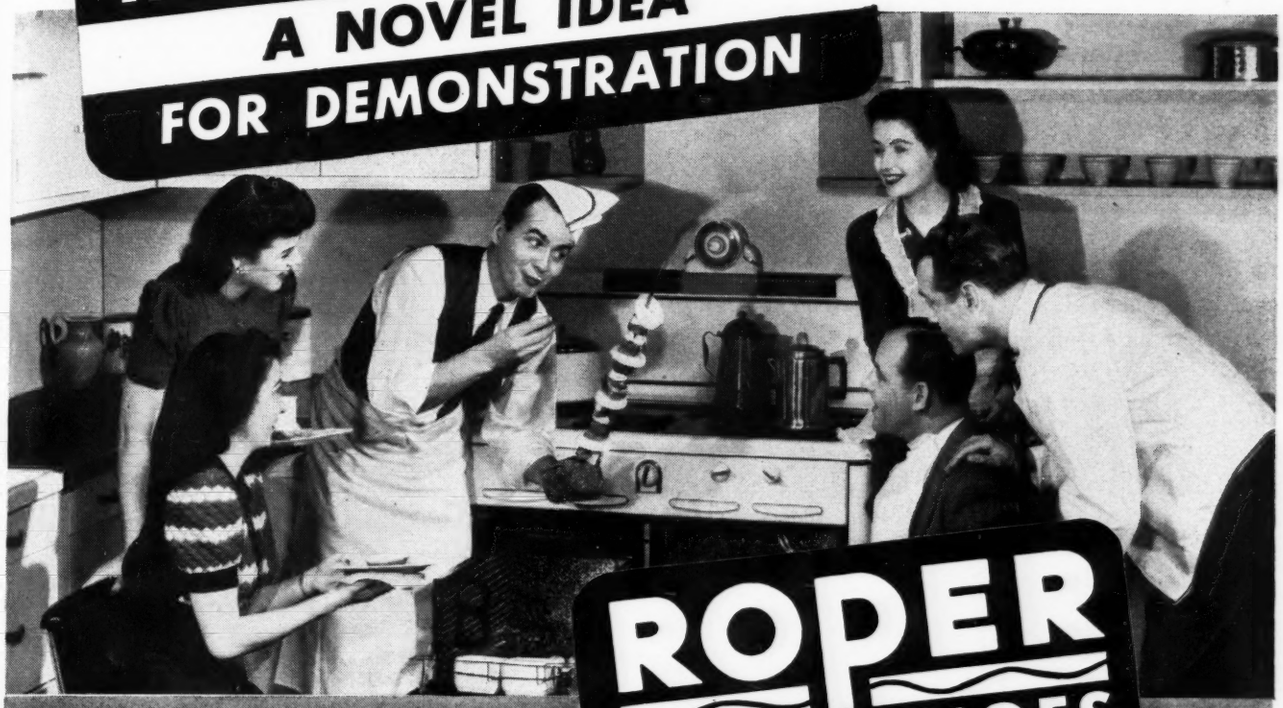
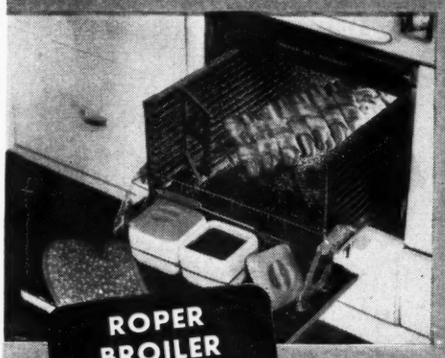


ROPER GAS RANGES



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The "Bar-B-Q" consists of a long skewer that will hold two 2½-pound chickens or a large ham . . . plus a skewer support that makes it easy to turn the meat or fowl every few minutes.

The "Pic-Nic-Kit" is composed of colorful asbestos mitt, basting spoon, large fork, dishes for your favorite relishes, etc.

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Here is an idea that will instantly appeal to your prospects. Write for complete information. Use the "Picnic in Your Kitchen" on your display floor, before special groups, in the home. Take advantage of this new way to romance barbecuing—an idea that is catching hold like wildfire.

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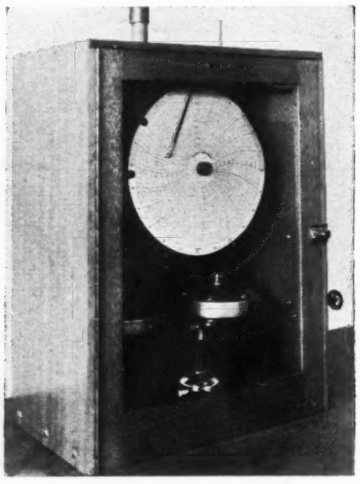
RECORD SPECIFIC GRAVITY of GASES *ACCURATELY* regardless of temperature variations



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This dependable, direct-weighing instrument produces highly accurate records of the specific gravity of gases on a circular chart that can be read directly to the second decimal place, and by easy and close approximation, to the third decimal place.

Even under extreme conditions of temperature change, consistent records are always procured, for a temperature-compensating pendulum controls the recording of the specific gravity of the gas always as though the gas were at 60 degrees Fahrenheit.

Careful construction without mechanical complexities, such as electric motors or pressure valves, renders this instrument practically frictionless and hence extremely responsive to even minute variations in the specific gravity of the sample. Its sturdiness assures long, faithful service. Once it is calibrated and properly installed, no further attention is required except to wind the clock, change the chart, and ink the pen.

Send for New Bulletin

AMERICAN RECORDING CHART CO.

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510 South Lansing Avenue, Tulsa, Okla.

Cities Service Completes Pipe Line to Oklahoma City

THE Cities Service Gas Co., Bartlesville, Okla., has completed a 55-mile, 16-in. high tension steel, electric-welded natural gas transmission pipe line from a point in Caddo county, in the West Cement gas field, to Oklahoma City.

The new line connects at a point in the Oklahoma City gas field with the 20-in. Cities Service line which carries gas north to Dilworth, Okla., and from there through branches to points in Kansas and Missouri.

The pipe, manufactured by the A. O. Smith Corp., was laid by a crew of 30 men, at the rate of two miles per day. Instead of constructing an under-water river crossing at the South Canadian river, which was impractical because of a quicksand bed, the 16-in. pipe was U-bolted to the I-beams under the Newcastle bridge about 15 miles south of Oklahoma City. Rollers were placed between the pipe and the I-beams to reduce friction. The line was connected to short sections of 30-in. pipe at each end of the bridge to take care of rather sharp curves. It will have a capacity of from 90,000,000 to 100,000,000 cu. ft. per day at approximately 700 lbs. pressure. At a point about eight miles south of Anadarko the J. F. Pritchard Co. of Kansas City, Mo., constructed for the Cities Service Gas Co., a dehydration plant, utilizing glycol and equipped with a five-unit Cooper-Bessemer compressor installation. The plant was scheduled to be in full operation about February 12.

■ ■

Panhandle Eastern Begins Construction in Michigan

Construction of Panhandle Eastern Pipe Line Co.'s 45-mile, 12-in. pipe line between Saginaw and Flint, Mich., was begun recently by I. C. Little and H. C. Price Co., contractors. The line, which has headquarters at Saginaw, is the first link of a 166-mile branch from the main trunk to be constructed this year and is being pushed while weather conditions permit. J. D. Creveling, president of the company, announced that his concern planned to spend $6,800,000 for expanding its service in Michigan this year. *(GAS*, December, 1941, pg. 37.)

Work is also going forward on the laying of 45 miles of 8-in. pipe between Peoria and Galesburg, Ill., which has been contracted by Oil States Construction Co. and H. C. Price Co. Pipe for this line was made available by the removing of some of Panhandle Eastern's system in eastern Kansas.

■ ■

Oklahoma Natural Sends Gas to Skiatook and Sperry

The communities of Skiatook and Sperry, north of Tulsa, Okla., began receiving natural gas from the Oklahoma Natural Gas Co., Tulsa, last month.

A 5½-in. O. D. steel-welded line about 10 miles long was completed from a point near Tulsa to Sperry late in December. This line, constructed by Oklahoma Natural, connects with lines which serve the new Douglas bomber plant near Tulsa.

From Sperry to Skiatook, a distance of about five miles, the gas is carried through a 6¼-in. line owned by the Union Gas System. The latter supplied gas to the Skiatook city gate through this line until the Oklahoma Natural supply was ready to turn into the lines.

The Union Gas System was given authority of the Oklahoma Corporation Commission, last fall, to suspend supplying gas to Skiatook and Sperry when the new Oklahoma Natural line had been completed. The Natural Gas Service Co., W. J. McNally, manager, distributes gas in Sperry and Skiatook.

■ ■

Carbon Black Plant May Be Constructed in Oklahoma

AN APPLICATION has been filed with the Oklahoma Corporation Commission by Charles Eneu Johnson & Co., a Pennsylvania corporation, to construct a carbon black plant near Orlando, in Logan county, Okla. Cost of the plant is approximately $500,000 and it is to be located on 20 acres of ground northwest of Orlando.

The company plans to use residue gas from a Shell Oil Co. lease near Orlando. A hearing was set on the application for January 13 but was postponed.

In 1939, according to the 1940 Minerals Yearbook of the United States Bureau of Mines, 89% of the carbon black manufactured in the United States was sold to rubber manufacturing companies. With the scarcity of rubber imposed by the present war, it is expected carbon black will be in even greater demand for the manufacture of synthetic rubber. According to the Minerals Yearbook, 41 of the 49 carbon black plants in the United States in 1939 were operating in Texas and Oklahoma. *(GAS*, April, 1941, pp. 12-15.)

■ ■

Recycling Plant Proposed In Erath Field of Louisiana

Plans for construction of a $2,000,000 recycling plant in the Erath field, southeast of Abbeville, La., and one of the deepest producing areas in southern Louisiana, were discussed recently by representatives of operating companies and the conservation department.

Companies seeking to unitize the area for construction of the plant include Phillips Petroleum Co., Humble Oil & Refining Co., Texas Co., and Tide Water Associated Oil Co. The Erath field has an allowable of approximately 1,000 bbls. daily and some of the wells are completed below 11,000 ft.

■ ■

United Gas Pipe Line Co. Denied Removal Permission

The Federal Power Commission announced January 26 its denial of an application by the United Gas Pipe Line Co., Shreveport, La., for an order permitting the removal and relocation of certain natural gas pipe line facilities utilized in rendering natural gas service to consumers in Port Arthur, Port Neches, and Nederland, Texas.

The order of denial follows a finding that the applicant failed to sustain the burden of proof to show that its available supply of natural gas is depleted to the extent that the continuance of service is unwarranted, or that the present or future public convenience or necessity permit the abandonment of the facilities.

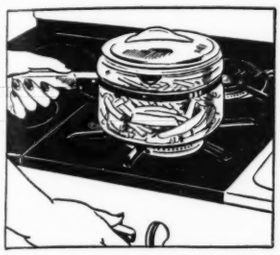
■ ■

Wisconsin Gas Transmission To Construct 900-Mile Line

The Wisconsin Gas Transmission Co., a subsidiary of the Phillips Petroleum Co., has announced plans to construct a natural gas pipe line from the Texas Panhandle into southern and eastern Wisconsin. The line will be about 900 miles long and will supply gas to 10 public utility companies which operate 15 distributing systems.

WEDGEWOOD'S COOKING FEATURES ★

★



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Cooked vegetables retain healthful vitamins.

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ASTOGRIL BROILER
Makes broiled meats better tasting.

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Better results with thriftier cuts of meat.

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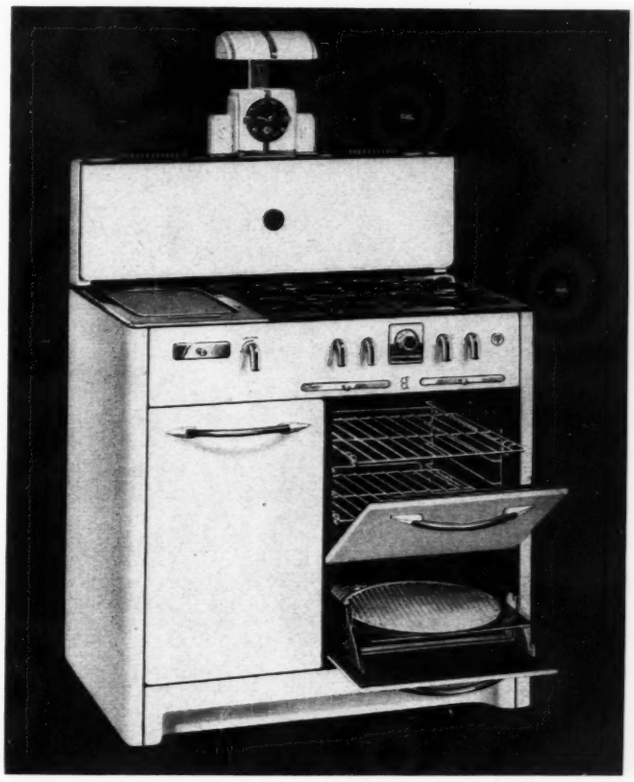
AVOID WASTE of Valued Vitamins



By permitting foods to be properly cooked, Wedgewood's proven cooking features avoid waste of valued vitamins. Besides retaining their vital food elements, so essential to health, foods actually become more tasty and appetizing. Housewives, moreover, have learned that they conserve food in the face of rising costs by serving vitamin-guarded meals prepared on Wedgewood Gas Ranges.

Gas THE MODERN FUEL

WEDGEWOOD GAS RANGES MAKE NEW FRIENDS FOR GAS

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WEDGEWOOD

THE MODERN GAS RANGE

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RESEARCH

Technical

Turbines for Power Generation from Industrial Process Gases—John Goldsbury and J. R. Henderson. *Refiner*, Dec., 1941, pp. 57-66. This paper presents a discussion of the fields of application for turbines operated by industrial process gases and natural gases, examples of the mechanical details of actual turbines which have been built for such applications, a simple method for calculating the energy available in a pure or a compound gas for specific operating conditions, and the properties of various gases for use in such calculations. After a study of the available data on gas properties, the authors have selected what they considered most authentic.

The Partial Volume and Its Significance—B. H. Sage and W. N. Lacey. *California Oil World*, 2nd Nov. issue, 1941, pp. 31-35. Part 1. The physical significance of the partial specific volume is discussed in some detail with especial reference to the concept of variable weight systems. The methods whereby the partial specific volume may be evaluated from experimental data are described and several applications of this property to the solution of industrial problems relating to systems of variable weight are indicated. In many of the industrial operations encountered in the petroleum industry, it is of importance to predict the specific volume or its reciprocal the specific weight, for a particular mixture at a given temperature and pressure. During the last decade a great deal of effort has been expended both in the accumulation of the necessary factual information relating to hydrocarbons and in the correlation of these results so that they might be of value to the practicing engineer. Among the various methods that have been proposed for the correlation of the behavior of hydrocarbon mixtures, the use of the partial volume has been suggested. It is the objective of this discussion to describe the significance of the concept of a partial volume only with regard to its application in industrial calculations and not to attempt to indicate the more general utility of such concepts. A C. N. G. A. paper.

Radiant Temperature Gradients in Gas-Heated Tubes—L. E. Stewart, J. B. Green, and R. L. Huntington. *Refiner*, Dec., 1941, pp. 74-77. Although the range of gas velocities and the size of the tubes studied in this investigation may not be comparable to conditions existing in a large amount of industrial equipment, the results indicate that careful consideration should be given such items as tube diameter, gas velocities, packing, etc., in the design of such equipment as air and gas preheaters and exchangers as well as packed vessels such as catalytic chambers where chemical reactions are to take place at a close temperature tolerance. Further experimental work is called for over a wider range of temperatures, gas velocities and tube sizes before the full value can be obtained through correlation with plant-scale performance.

EACH MONTH a competent staff reviews more than 70 publications serving the gas, oil and affiliated industries in a search for those published articles of value to technicians and executives in the gas industry. In this department of GAS, brief abstracts of such articles are presented.

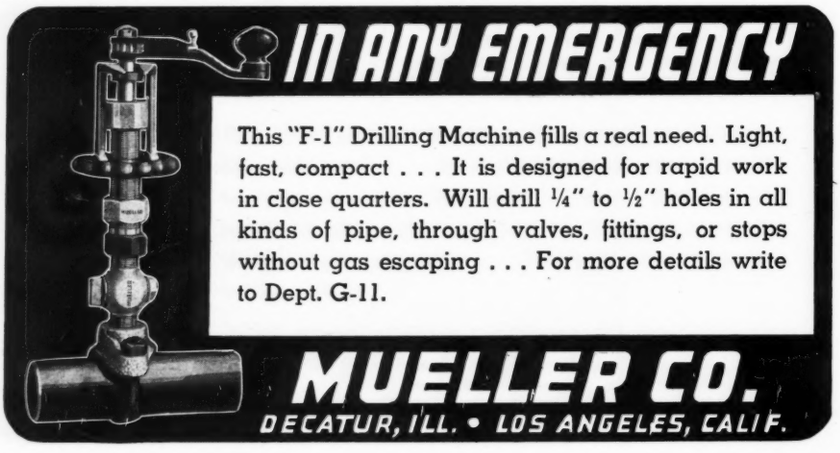
•

Methods of Light Hydrocarbon Analysis—J. J. Savelli, W. D. Seyfried, and B. M. Filbert. *Industrial and Engineering Chemistry*, Anal. Ed., Dec. 15, 1941, pp. 868, etc. Various methods for the analysis of mixtures of light hydrocarbons from methane through isopentane have been studied and compared as to their accuracy and suitability for routine operations. The methods studied have included the automatically controlled Podbielniak (Model L) column, the Ward method utilizing low-pressure fractional distillation and condensation, a dew-pressure method for n-butane-isobutane mixtures, the determination of olefins by absorption in various reagents and by catalytic hydrogenation, and the determination of isobutane by absorption in various reagents and by its reaction with anhydrous hydrogen chloride. Synthetically prepared mixtures have been used for the fundamental investigations. Various methods of sampling and handling liquefied light hydrocarbon mixtures have been studied and compared.

Temperatures of Natural Gas Pipe Lines and Seasonal Variations of Underground Temperatures—Report of Investigations 3590—W. M. Deaton and E. M. Frost, Jr. An investigation by the Bureau of Mines, Department of Interior, Washington, D. C., on the "freezing" of natural gas pipe lines in cold weather by the formation of snow-like compounds called gas hydrates. Temperature surveys of certain Western pipe lines have been made. Fluctuations in the temperature of gas as it crossed under a river bed were recorded by thermometers installed in the pipe line on either side of the river. Report describes the method of obtaining the temperatures and contains continuous temperature records taken at 10-mile intervals along a 340-mile pipe line. These include atmospheric temperatures, ground-surface temperatures, and underground readings, and cover periods of three to four years. A copy of the report (No. 3590) may be obtained from the Bureau of Mines, Department of the Interior, Washington, D. C.

Correcting Engine-Test Data by Means of a Nomograph—R. O. Kinsey and E. E. Batzell. *Oil and Gas Journal*, Oct. 30, 1941, pp. 40, 41. Presentation is made by the authors of a nomograph for correcting observed data to standard when determining the brake horsepower of an internal-combustion engine. This replaces a simple but cumbersome formula used for the purpose.

Cathodic Protection of Pipe Lines—In Technical News Bulletin 296 of the National Bureau of Standards (December, 1941) a resume was given of the present status of cathodic protection of pipe lines. A paper on this subject was presented by Kirk H. Logan at the Second Annual Water Conference of the Civil Section, Engineers' Society of West-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This "F-1" Drilling Machine fills a real need. Light, fast, compact . . . It is designed for rapid work in close quarters. Will drill ¼" to ½" holes in all kinds of pipe, through valves, fittings, or stops without gas escaping . . . For more details write to Dept. G-11.
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Every PITCO Frialator
Connected to Your Mains . . . Means a LARGER METER-READING for YOU!
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Here's an impregnable defense against competition! When you install a PITCO FRIALATOR, it's a completely *new* factor . . . an immediate contribution to your commercial load.

And to your customers, also, the PITCO FRIALATOR is a powerful force for combating competition. Everybody who serves food to the public will quickly appreciate the outstanding features of the PITCO FRIALATOR . . . features which will enable them to produce *better, more salable deep-fried foods*, at minimum cost!

The constant, exact temperature-control of the PITCO FRIALATOR retards breakdown of the frying-fat! Construction of the PITCO unit retards breakdown and upholds quality of food . . . eliminates the burning of sediment. Savings in fat *alone* will quickly pay for the installation . . . and the improved quality of product pushes sales UP while production costs come DOWN.

DO YOUR PART . . . CONSERVE FAT

Every progressive Gas Executive is invited to write for information on the cooperation which we extend to Gas Companies.

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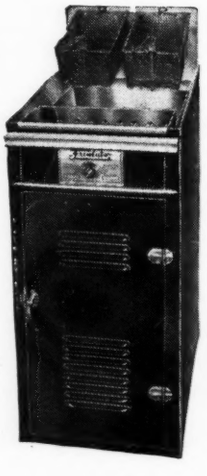

Preview of coming campaigns by

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PACIFIC GAS AND ELECTRIC COMPANY

and the Gas Appliance Society of California

GAS COOKING, HEATING and WATER HEATING . . . .

P. G. and E. advertising of gas appliances during the month of February will feature all three of the principal uses for gas . . . cooking, heating, and automatic water heating.

In each case, the character of the advertising and the amount of advertising will be tuned to the war situation and the particular status of each appliance with respect to materials and stocks on hand.

In addition to three gas advertisements in some two hundred newspapers, we will also have a number of gas billboards and nearly 400,000 bill-stickers.

For copies of all advertisements and a full schedule of publication dates, see your local paper.

G 202-242

DEALERS: By watching this page from month to month you can keep informed of sales promotional campaigns to be sponsored by the Pacific Gas and Electric Company and the Gas Appliance Society. Detailed information will be supplied, as usual, through the mail. If such information is not received, call our local office or write Gas Appliance Society, 1355 Market Street, San Francisco, California

THE *Pacific* LINE HAS *Everything* YOU WANT

★ Proper housing of defense workers demands both new installations and replacements.

Efficient, automatic fuel saving economy and uniform, healthful warmth distribution contribute to today's defense objectives of conservation and National health.

In addition, the PACIFIC line offers gas appliance dealers the time and money-saving features of completely assembled shipments, quick, easy access to all operating parts for servicing and unusual ease of installation.

Write today for free catalog and details.

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The New

850 **BASO** SWITCH
Provides
COMPACTNESS
RAPID TIMING
GREAT FLEXIBILITY
Milwaukee Gas Specialty Company
MILWAUKEE WISCONSIN

ern Pennsylvania, on November 3, 1941. A limited number of mimeographed copies of this paper are now available and will be sent on request to applicants who can show a real need for the information. Requests should be addressed to: Underground Corrosion Section, National Bureau of Standards, Washington, D. C.

Drying Sand for Sand-Blasting—Victor M. Alexieff. Bulletin No. 106, Gas Utilization Data, Pacific Coast Gas Association, 447 Sutter St., San Francisco, Calif. Takes up the problem of converting a rotary sand-drier from oil to gas at one of the sand-blasting concerns in the Pacific Coast Bay region. Sand-drier consists of a cylinder 8 ft. long and 2 ft. in diameter, made from 3/16 in. plate. Several mixing blades are located inside the cylinder to stir the sand as it passes through the drier. Heat was supplied by a Hauck Oil Burner installed, through the axis, just inside the lower end of the cylinder and firing directly into the cylinder. The fuel used was a mixture of 50% diesel oil and 50% gasoline placed under an air pressure of 80 p.s.i. and discharged into the burner. Details of the conversion process and the results obtained are brought out by use of a table in the bulletin.

Principles of Gas Storage Water Heater Design for Maximum Hot Water Delivery—Bulletin No. 12—By the American Gas Association Laboratories. Divided into two sections. The first covers a study of the influence of heat application to water heating vessels in producing stratification or separation of hot and cold water during heating periods. The second covers the effectiveness of dip tube design or other methods of introducing cold water to the storage vessel for accomplishing a separation of hot and cold water during draw periods. Copies of the bulletin may be obtained at $1.25 each plus postage from the American Gas Association Testing Laboratories, 1032 East 62nd St., Cleveland, Ohio.

Experience With and the Effect of Use of Scrapers on Internal Corrosion of Gasoline Pipe Lines—D. E. Sullivan. *Oil and Gas Journal*, Nov. 6, 1941, pp. 122, etc. The original capacity of a gasoline pipe line can be restored or maintained from the beginning of its operation if scrapers of the "wire brush and rubber squeegee" type are run through the line at uniform intervals of every three or four days. Whether this process increases the rate of interior corrosion by constantly exposing fresh surfaces to new attacks or whether persistent and frequent removal of water by the scraper causes abatement of the corrosion rate has not yet been proved. An A. P. I. paper.

Natural Gasoline Plant Practice as Applied to Cycling in High Pressure Pools—P. C. Dixon. *California Oil World*, 2nd Nov. issue, 1941, pp. 23-27. A cycling plant operator, in contrast to the natural gasoline plant operator, is usually both a producer and a manufacturer or processor; consequently, this paper deals with over-all operations and discusses production problems as they relate to plant operations. Production problems; Organization; The cycling plant; Safety in plant operation; Selection of material; Selection and care of absorption oil. A C.N.G.A. paper.

Sludge Gas for Motor Fuel—*Engineering News-Record*, Dec. 4, 1941, pp. 802-803. A truck that travels 3½ miles on a gallon of gasoline could go 8½ miles on a cylinder of compressed sludge gas, according to a report made in Atlanta, Ga., relating to the utilization of excess digester gas. By converting all the city motor equipment for operation by sludge gas an annual saving of $8000 would be possible. At the present the city is generating power from the gas and using the excess for fuel in heating boilers at a water pumping plant.

Mechanism of Flow of Fluids Through Orifices—J. T. Cortelyou. *Oil and Gas Journal*, Dec. 11, 1941, pp. 58, etc. This article is a brief of the work done by Julius M. Naiman titled "Summary of Results of Data of an Investigation of the Mechanism of Flow of Fluids Through Orifices." Discusses three basic laws and four concepts presumed to be sufficient to solve the problem.

A Chart to Provide Approximate Correction for Temperature and Deviation From Boyle's Law—A. D. Brokaw. *Petroleum Technology*, Sept., 1941, p 3. This chart was devised to provide a rapid and simple method of correcting for temperature and compressibility (deviation from Boyle's law) of gas under relatively high pressures and temperatures, such as are encountered in many deep reservoirs.

Handbook of Feedwater Treatment—*Power*, Dec., 1941, pp. 55-86. This article briefly discusses objectives, filtration, lime-soda treatment, zeolite softeners, internal treatment, deaerators, evaporators, blowdown, how to buy service, atomic hook-ups, chemical building blocks, common compounds, typical reactions, control tests, meaning of analysis, and chemical data.

Elements of Orifice Meter Operation and Maintenance—J. W. J. Bercher. *Petroleum Engineer*, Nov., 1941, pp. 86, 88. Part 1. Designed specifically to aid in training chart changers and plant operators in the development and use of orifice meters, this practical discussion of gas measurement should prove interesting to engineers and others as well.

X-Raying Welded Pressure Vessels—A. J. Moses. *Welding Engineer*, Dec., 1941, pp. 19-23. In this review of 10 years' progress in the radiophotographing of welded pressure vessels there is described the advantages in time, sensitivity and penetration of million volt X-ray equipment when examining seams in welded vessels.

Subsurface Pressure Recorders and Equipment—H. G. Abadie. *Petroleum Engineer*, Nov., 1941, pp. 69, etc. Details of the instruments and equipment used and the field procedure and practices followed by the Kettleman North Dome Association, California, in making subsurface pressure surveys.

Valves—Their Selection and Application—F. E. Davenport. *Petroleum Engineer*, Dec., 1941, pp. 62, etc. A review of the essential differences between gate and globe valves designed to improve the service derived from this important class of piping control.

The Thermal Properties of a Wet Gas—G. G. Brown and Fred Kurata. *Petroleum Engineer*, Dec., 1941, pp. 23-28. Enthalpy-entropy and temperature-entropy diagrams for wet gases, such as condensate, aid in accurate calculations involving thermal properties.

A Critical Analysis of the Application of the Back-Pressure Method in Studies of Gas Reserves—J. W. Ferguson. *Petroleum Engineer*, Nov., 1941, pp. 50, etc. Part 2 and last. Part 1 in September issue, p. 34.

Elements of Orifice Meter Operation and Maintenance—J. W. J. Bercher. *Petroleum Engineer*, Dec., 1941, pp. 44, etc. Part 2. Part 1 in November issue.

+ + + +

United Gas Pipe Line Sets Delivery Record

AN all-time high in natural gas deliveries was announced by United Gas Pipe Line Co. when a check of the November withdrawals of natural gas showed that deliveries had exceeded 1,000,000,000 cu. ft. daily for eight of the month's 30 days.

The largest withdrawals in the history of the company came November 25 when 1,093,126,000 cu. ft. of natural gas were taken from the 84 gas fields on the company system. Weather conditions alone were not responsible for the huge deliveries, but rather the increasing demands for fuel by industries engaged in national defense production which have been enlarging their plants, and steadily increasing their production. This was shown by the fact that fair weather existed over a majority of the system served by United's more than 6000 miles of pipeline during these record-breaking days. The previous record of 1,068,000,000 cu. ft. in one day was made in January, 1940, when a cold wave swept the entire country creating the lowest temperature in recent years.

The company has made certain of the continuance of dependable natural gas service through the present emergency by adding to its system new lines and compressor stations where necessary. Soon to go into service is a new compressor station at Tallulah, La., and a 200-mile line running from the gas fields of southern Louisiana to Mobile to serve the growing industrial areas in the Mobile-Pensacola area. (See *GAS*, Sept. 1941, pg. 29)

■ ■

War Conditions Postpone Rate Cuts by P. G. & E.

Because of war conditions and possible blackouts the contemplated cuts in gas and power rates of the Pacific Gas and Electric Co., San Francisco, Calif., will probably be shelved, according to the Railroad Commission. The company has added personnel for defense work, including protection of the properties and faces rising labor costs, materials and maintenance costs at a time when daylight saving proposals and blackouts threaten to cut deeply into revenues. A contemplated cut of $1,000,000 in gas rates may be postponed due to the difficulty to foresee the future because of the war.

Natural Gas Burners Aid Processing of Hybrid Corn

THE De Kalb Agricultural Association, Inc., De Kalb, Ill., has now been using natural gas burners in its modern plant for the drying and processing of hybrid corn for more than a year with very successful results, according to Harold Johnson, of the company. One of the greatest advantages of the gas burners is the exact control of temperature and complete combustion which was never accomplished with oil burners, stated Mr. Johnson.

The drying building, which has a capacity of 20,000 bu., is equipped with four independent high pressure gas burners. Each burner drys 5000 bu. from 30% moisture to 15% moisture in approximately 120 hours with gas of 1000 B.t.u. per cu. ft. The bins are filled about four times every month and it takes approximately seven days (five days for drying and two days for shelling and filling the bins) for each batch of corn to run through the driers.

The station is fed by a 2-in. line, from the station to the burners by a 4-in. line, and by a 1-in. line to the individual burners which are of the Maxon Venturi type. Gas pressure for maximum heat is 20 lbs. per sq. in. but during the usual season it varies largely between one and 16 lbs. The combustion products are discharged into the air tunnels so they come in direct contact with the ear corn. Later, the same air is discharged from the ear corn into the open air when it has become dampened and cooled.

■ ■

Jones & Laughlin Announce New Office, Sales Managers

The creation of a new district office in Tulsa, Okla., and changes involving its district sales offices in New York City, Washington, D. C., Chicago, Ill., and Memphis, Tenn., have been announced by the Jones & Laughlin Steel Corp., Pittsburgh, Pa.

R. J. Woods, Jr., sales engineer in the Memphis office since 1935, has been appointed district sales manager of the newly-created office in Tulsa. He is a graduate of Vanderbilt University. E. E. Hoehle, who has been with the company since 1912, is the new sales manager at Memphis. He succeeds Ernest W. Harwell, a graduate of Georgia Tech, who will serve in the same capacity in Chicago.

S. A. Fuller, sales manager in Boston from 1929 to 1938 and since then in the same capacity in Chicago, is now sales manager in New York City. He is a graduate of Dartmouth College and succeeds John B. DeWolf, who has been in the steel business since 1918 and will be in charge of sales for the Washington, D. C., district for the company.

■ ■

Dresser Issues Booklet to Explain Industrial Services

Dresser Mfg. Co., Bradford, Pa., has issued a 44-page booklet titled "Dresser Industries in National Defense and Civilian Service," in which the activities of that company are explained and illustrated.

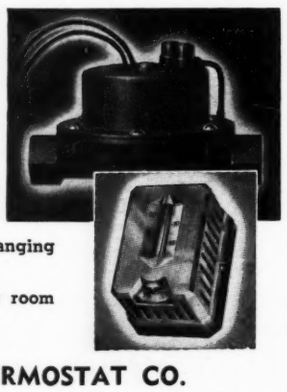
How the men, machines and methods of the company are geared to national defense and protection of vital civilian services is described by telling particular activities each subsidiary of the firm is now engaged. Subsidiaries include: Dresser Mfg. Co., Ltd., Toronto, Ontario, Canada; The Bryant Heater Co., Cleveland, Ohio; Clark Bros. Co., Inc., Olean, N. Y., and Pacific Pump Works, Huntington Park, Calif.

VALVES FITTINGS Accessories for Gas Burning Appliances

THE W. J. SCHOENBERGER CO.
CLEVELAND···OHIO

LISTEN...

Just listen to a KLIXON Electric Gas Valve in action and you notice an important difference. There's no humming, no chattering, no sticking. For these valves are thermally operated by a snap-acting thermostatic disc. No solenoids are used. Designed for use in all types of gas heaters, these valves come in sizes ranging from ⅜" to 1¼" I. P. S.
Write for complete information on KLIXON snap-acting room thermostats.



KLIXON

SPENCER THERMOSTAT CO.
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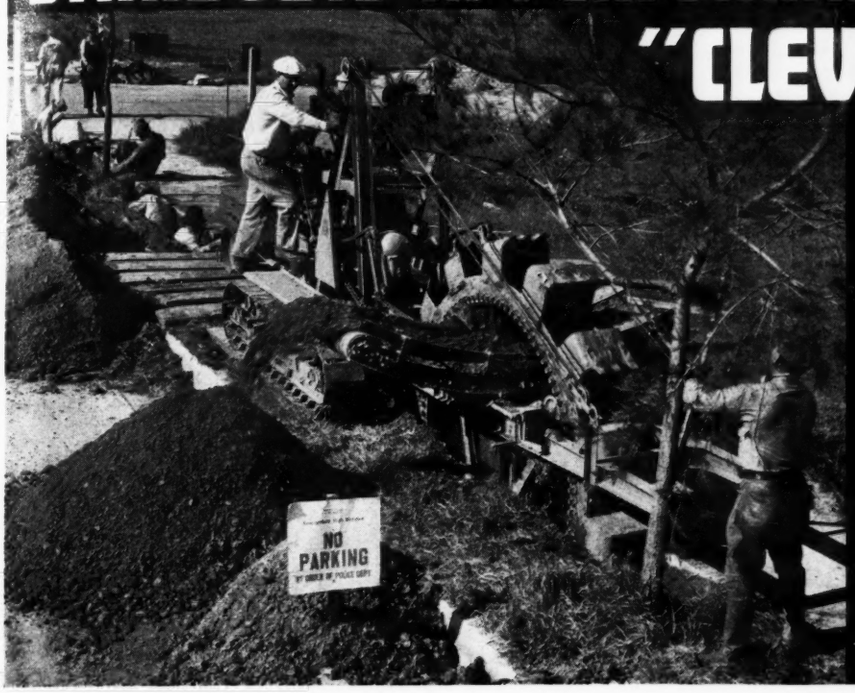
STANDOUTS In PERFORMANCE— "CLEVELANDS"!



● Cleveland, for years, has led the field in the production of trenching machines for city and town gas distribution work. The answer is in standout performance.

Clevelands are supreme in their ability to get *in* where the pipe has to be laid and to get the job *done* with maximum speed and lowest cost.

Pictorially portrayed, at left, is a striking example of their compact construction and maneuverability. Machine shown is a "Baby Digger" (Model 95). Despite sidewalks, light-poles and small trees, it is delivering machine-work savings on 98% of this job.

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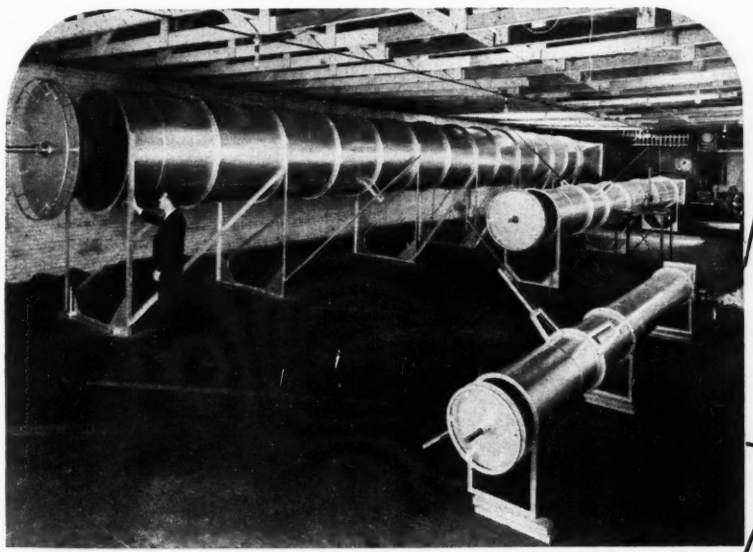

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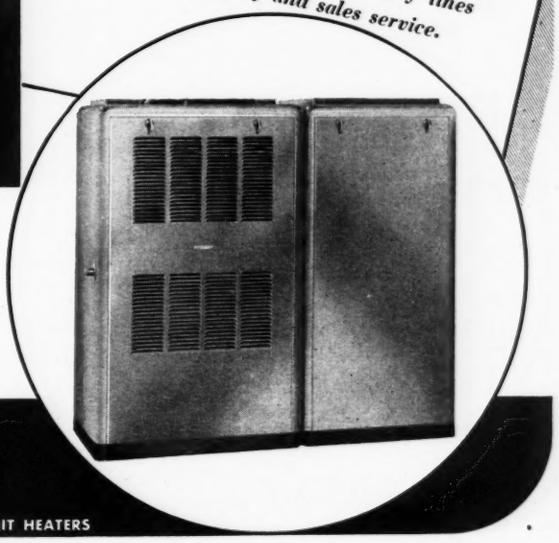

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PRODUCTS

Explosion-Proof Cabinets

The Precision Scientific Co., 1730-33 No. Springfield Ave., Chicago, Ill.

Application: For use in hazardous locations.

Description: A new series of four standard sizes of explosion proof constant temperature cabinets, approved by Underwriters' Laboratories, Inc., for use in Class 1, Group C and Group D, in which flammable volatile liquids, highly flammable gases, mixtures or other highly flammable substances are manufactured, used, handled, or stored in other than their original containers. Explosion-proof features embrace complete absence of exposed contacts, electric controls, switches, or wiring terminals, so as to prevent ignition of explosive gases in the atmosphere, or inside the cabinet; safety release latches on doors, for instant opening under the pressure of an explosive burst which might occur inside the cabinet; also special venting to exhaust dangerous gases. Temperature range is 35° to 150° C. Cabinets may be operated at any steam pressure between 0 and 100 lbs. saturated.

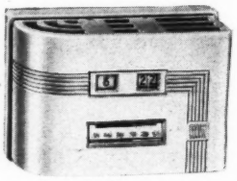
■ ■

Clock Thermostat

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Model: No. T811 Chronotherm Clock Thermostat.

Application: The manufacturer states that the T811 Chronotherm makes it possible for home owners to have fully automatic lowered night temperature regardless of whether Series 10, 20 or 80 control circuits are employed.



Description: Features of the thermostat include: a self-starting Telechron motor driven numeral clock; special silver thermostat contacts actuated by a tempered bi-metal element; adjustable differential; finger-tip adjustment and setting; lock-on cover when desired; and convenient wall mounting plate. Standard range is 54° to 84° F.

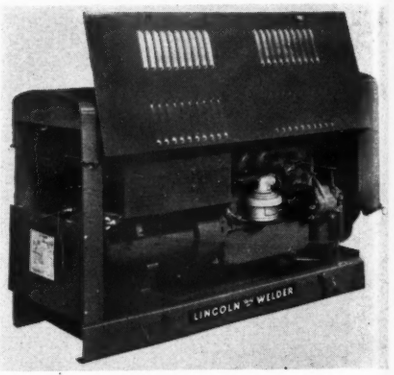
■ ■

Arc Welder

The Lincoln Electric Co., 12818 Coit Road, Cleveland, Ohio.

Application: An engine driven arc welder which is specially designed for job welding and garage work and which embodies a new system of engine-speed control for maximum fuel economy and minimum engine wear.

Description: Of 200-ampere size, the unit is engineered for welding applications of all types and sizes. With a current range of 40 to 250 amperes, the machine can be used for the welding of light gauge metal, for



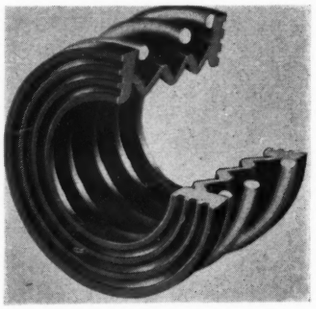
the repair of cast iron parts such as engine blocks, for fabrication of machine parts and structures of many kinds, and for hard-facing worn parts. The machine's self-indicating voltage control ("job selector") and current control make it easy for the operator to select any type of arc and any arc intensity to suit the job. The unit is equipped with exclusive "dual continuous control," enabling variation of both open circuit voltage and welding current, independently. The welder is powered by a Hercules industrial engine equipped with centrifugal type governor, high tension magneto with impulse started coupling, and oil bath aircleaner. Net weight of the unit is 890 lbs. Dimensions: 56 in. by 37 in. by 20 in.

■ ■

New Water Pump Seal

Crane Packing Co., 1800 Cuyler Ave., Chicago, Ill.

Description: A new bellows-type water pump seal which has only two parts: bellows and spring. Bellows is an exclusive synthetic rubber compound not affected by grease, oils, salt water, alcohols and anti-freeze. Installed partially compressed; ready for instant seal. Entire unit (bellows and spring) is spring driven and operates as a driving coupling. Seal does not touch or have a



sliding contact with the shaft. Bellows connects two flanged ends. Spring is placed in a fixed position against the inside shoulders of the flanged ends and so holds the contact facings against the sealing washer on the one end and the driving base on the other. "Blindfold" installation; seal cannot be installed wrong on the assembly line or in the field. Both ends are identical—either end is right.

Floodlight Concentrator

Birdseye Division, Wabash Appliance Corp., Brooklyn, N. Y.

Application: For high bay lighting in industrial plants, auditoriums and stores with high ceilings.

Description: Delivers a concentrated flood of light that cuts through distance, haze, and smoke. Provides brilliant illumination in foundries and factories where high ceilings and traveling cranes or other obstructions make impractical the installation of lights closer to the work plane. Designed to force down to the work plane level the full light that the filament develops. Filament is mounted at exact focal point of the hump-shaped parabola of the bulb, so that light rays are forced straight out of the bulb without waste. Inside of bulb is lined with polished silver to form a permanently brilliant reflector that cannot be dimmed by dirt, fumes, or smoke. For industrial use a 1500 watt size is made. Twelve smaller sizes are available.

Catalogs

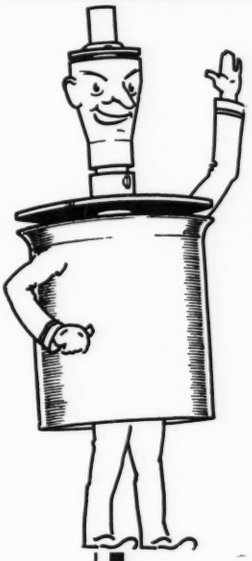
• Wheelco Instruments Co., Harrison and Peoria Sts., Chicago, Ill., has issued a 12-page condensed catalog of the principal items of equipment manufactured by the company. Some of the items listed in the catalog index are: capacitrols, flame-otrols, flame-otrol auxiliaries, heat-eyes, lead wire, limitrols, potentiometers — portable, potentio-trols, pressure controllers, pressure indicators, program controls, proportioning control, pyrometers—portable, pyrometers—wall mounted, "radio principle" control, remote controllers, rheotrols, thermocouples, thermometers — indicating, thermometers — recording, thermometers—resistance, therm-otrols — indicating, therm-otrols—recording, and switches—selector.

• The Brown Instrument Co., Philadelphia, Pa., has issued a new bulletin, No. 85-18, titled "The Brown Triple Function Proportioning Control System (Utilizing the Beck Mechanism)." The bulletin describes the use of the company's single record control potentiometer in combination with the Beck mechanism. Descriptions of the individual functions of the system such as proportioning action, proportional reset action, timed reset action and initial approach setting are included.

• The Bristol Co., Waterbury, Conn., has prepared a new bulletin which describes an automatic heating-cycle control system in operation on furnaces for annealing malleable iron castings. The bulletin is illustrated and describes the cycle of operation, instruments, control valves, and safety devices. A copy of the bulletin (IDS28) may be obtained upon request.

• Elastic Stop Nut Corp., Union, N. J., has just issued a booklet on the use of elastic stop self-locking nuts. Illustrations and copy explain how they work and the reasons for using them. Examples of the use of the fastenings on military and transport airplanes, tanks, motorized equipment and guns are given.

• The Otto Construction Corp., New York, N. Y., has issued a new folder, the improved Otto coke oven collecting main. Charts show actual results obtained per ton of coal carbonized and the temperatures in the gas space above the charge.



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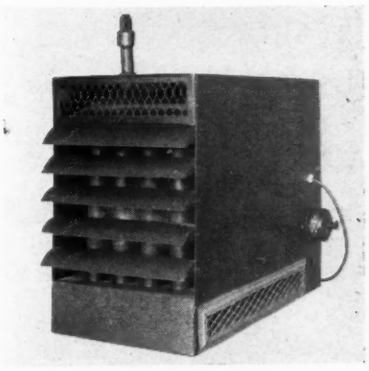

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California Commission Issues Service Extension Order

THE Railroad Commission of the State of California, on December 10, issued its First Interim Order covering Case No. 4619, in the matter of emergency rules, regulations, and practices of Gas and other utilities in the furtherance of National Defense, according to Roy A. Wehe, Gas and Electric Engineer for the Commission.

This Order was issued because of the necessity for relaxing certain rules covering the extension of public facilities due to shortage of vital materials. Under the Order the Commission has suspended or modified the rules of public utilities respecting the making of such service connections and extensions, except as to applicants for service who possess defense priority ratings. This ruling will enable the utilities to at once comply with all national defense laws and orders and still abide by its regulations on file with the Railroad Commission.

Under the order the utility will, to the extent of its ability, furnish service to applicants not possessing priority ratings in the following order:

1. Service connections which can be made without a line extension.
2. Line extensions and service connections with least material requirements.
3. Line extensions and service connections that can be made within the free footage allowance.
4. Without the specific approval of the Railroad Commission, no extension of facilities or service connections will be made outside the existing service area of this utility, nor to any subdivision prior to building construction therein.

The Commission has ordered also that it be advised weekly as to service applications which have been refused under the Order.

An informal order will permit gas utilities to switch off aircraft beacons on gas holders during blackouts. The beacons are required by GO-94.

■ ■

O. P. M. Asks Natural Gas Conservation in Middle West

The Office of Production Management issued an urgent appeal on January 8, 1942, asking all consumers of natural gas in nine States, mostly in the Middle West, to cut their consumption as much as possible during the then current cold wave in order to make gas available for war production plants.

The shortage was said to be serious in the following States: Illinois, Indiana, Ohio, Pennsylvania, West Virginia, Western New York, Michigan, Kansas and Missouri. Cities where the shortage is serious included Dayton, Cincinnati, Pittsburgh, Cleveland, Buffalo, Binghamton, Detroit, Columbus and Chicago. Residential consumers were asked to keep room temperatures down, close off heat in unoccupied rooms and use gas appliances as little as possible.

■ ■

Columbia Steel Co. Uses Gas To Fight Rust in Warehouse

The Columbia Steel Co., Portland, Ore., has installed 18 modern gas unit heaters in its huge warehouse of 1,700,000 cu. ft. capacity. Condensation, a costly menace in the form of rust in an unheated warehouse is counteracted by the automatic heaters which are suspended from above to conserve space and to safeguard the vital defense materials.

Supreme Court Decision On Natural Gas Act Case

IN Illinois Natural Gas Co., Springfield, Ill., vs. Central Illinois Public Service Co., also of Springfield, the Supreme Court of the United States on January 5, 1942, held that a gas pipe line company operating wholly within a State which purchased gas from a corporation located outside the State and which sold gas at wholesale to distributors within the State is subject to the jurisdiction of the Federal Power Commission.

The action arose on complaint of Central Illinois Public Service Co., a wholly intrastate distribution company, to the Illinois Commerce Commission which ordered the Illinois Natural Gas Co. to supply the Central Company with natural gas and to extend its pipe line so as to connect with Central's pipe line system and to supply gas in sufficient quantities to enable it to satisfy the needs of its customers.

The Central company was distributing natural gas to consumers in several Illinois towns and cities which it purchased for resale from Universal Gas Co., Owensboro, Ky., and took from the pipe line of the latter at the Illinois State line. The Universal company in turn acquired the gas in Indiana from Panhandle Eastern Pipe Line Co., Kansas City, Mo., and from Kentucky Gas Corp., Owensboro, Ky.

■ ■

Long Beach Plant Expects $4,000,000 Outlay by 1950

The Municipal Gas Department, Long Beach, Calif., estimated that an outlay of $4,297,000 for improvements and extension of the gas system would be necessary by 1950. Growth of consumer demand and expansion of the Long Beach city area was taken into consideration in the estimate which outlines expenditures as follows: gas distribution system, $2,047,000; fuel storage, $350,000; high-pressure natural gas storage, $735,000; gas transmission and feeder system, $355,000, and Belmont Shore low-pressure gas storage, $180,000.

The program is partially dependent upon continued availability of natural gas from nearby oil fields. If there should be a diminishing amount of natural gas available, the Gas Department contemplates the possibility of having to manufacture gas, which would entail an additional $2,500,000.

The estimated number of gas consumers by 1950 is 80,000 compared to the present 57,000. Gas Department officials are of the opinion that at least $500,000 a year will be necessary in the next six to eight years to provide that such an amount can be earmarked from annual income in order to build up needed funds.

■ ■

F. P. C. Postpones Indiana Rate Agreement Hearing

The Federal Power Commission announced January 24, its order postponing until February 12, the hearing on rate agreements between Panhandle Eastern Pipe Line Co., Michigan Gas Transmission Corp., and Northern Indiana Public Service Co., which, it is alleged by the Public Service Commission of Indiana in a petition filed with the Federal Power Commission, may adversely affect rates to natural gas consumers in Fort Wayne, Bluffton, Huntington, Decatur, Columbia City, Preble, Ossian, and South Whitely, Ind. The postponement followed consideration of a request by counsel for the Panhandle Eastern Pipe Line Co. The hearing will be held in Room 353, Federal Bldg., Fort Wayne, Ind.

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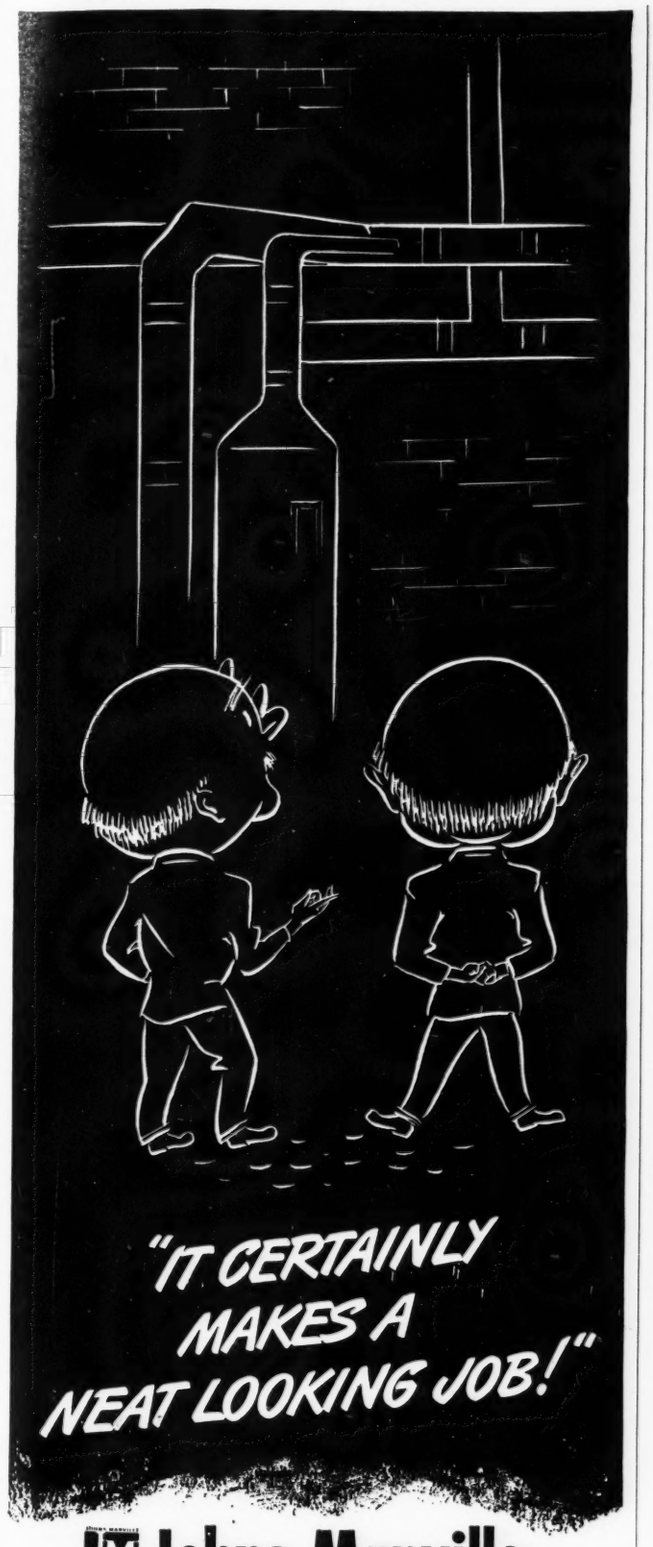

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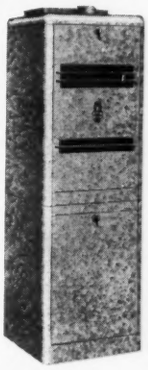

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Blood Tests Are Conducted In Large Industrial Plants

WELL over half the largest industrial plants in the country are including a routine blood test for syphilis in employee physical examinations, according to a recently completed study, the American Social Hygiene Association estimated recently.

The Association bases its findings on more than 200 large plants scattered through 43 states which answered questionnaires sent out by the Association. These plants represent many types of industry and employ 1,000,000 men. For the most part, they have at least 1000 employees, approved medical services, and produce a large share of the country's munitions, tanks and planes.

Two-thirds of those companies including serologic tests as part of employee physical examinations, maintain the realistic policy of accepting infected applicants for employment if they are not infectious, not disabled and will take treatment. This policy is even more liberally interpreted for infested workers already on the job. Three-fourths of the companies retain these employees with the usual provision that they cannot work while infectious and must take adequate treatment. Since the first few treatments render a patient temporarily non-infectious, and safe for ordinary contacts as long as he follows his physician's orders, layoffs on account of infectious syphilis are brief.

With approximately half the plants which replied to the questionnaire carrying on some form of educational work about syphilis, the Association reaches the very hopeful conclusion that according to this sampling survey the majority of large plants now engaged on defense production are including in their medical program provisions for finding syphilis and informing their workers about its danger, treatment and cure.

■ ■

The Fluor Corp., Ltd., Begins Double Expansion Program

The Fluor Corp., Ltd., Los Angeles, Calif., through J. S. Fluor, Jr., has announced two additions to its facilities in an expansion move which will provide an added wing to the company's main office building to house its engineering department and the construction of a new building to house the company's new research and development laboratory.

The addition of the wing to the parent building marks the third such addition to the structure and the second addition to the engineering department wing since the company occupied its new office building in September, 1940. The initial expenditure for the building and laboratory equipment will be $25,000. Research and development will be under the direction of A. J. L. Hutchinson, chief process engineer, assisted by Ira C. Bechtold, F. W. Bell and Ernest Moncrief. The engineering department wing, to be added to the parent office building at a cost of $10,000, will provide additional office space for draftsmen. Construction of this unit is also under way with completion scheduled for April.

■ ■

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■

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Servel Announces Changes On N-500 Type Models

Servel, Inc., Electrolux Sales Division, Evansville, Ind., has announced that the extended aluminum evaporator, which has been used on models N-500A, N-500B and N-500 is being discontinued and will be replaced with a steel evaporator. These models with the new type evaporator will be designated as N-510A, N-510B and N-513.

The principal changes are in the unit design made necessary by substituting a steel evaporator for an extruded aluminum evaporator. In the extruded aluminum type the evaporator tubing was on either side of the evaporator, whereas in the steel evaporator, the tubing is located beneath the shelves. These changes increased the height of the ice cube compartment although the over-all height of the evaporator has not been increased, as the box cooling coil has been decreased in height.

The change in the evaporator design necessitated a change in the condenser as well as in the connections to the hydrogen reserve vessel.

■ ■

Dresser Mfg. Co. Acquires Bovaird & Seyfang Mfg. Co.

Dresser Manufacturing Co., Bradford, Pa., has announced the acquisition of Bovaird and Seyfang Manufacturing Co., of the same city, as a wholly-owned subsidiary.

The acquisition enables Clark Bros. Co., Inc., Olean, N. Y., a Dresser subsidiary, to obtain extra manufacturing capacity. The recently-acquired company has manufacturing facilities of 147,000 sq. ft. of plant and buildings. It was founded in 1874 and was incorporated in 1891. Its main products are gas engines, Diesel engines, gear and band wheel pumping powers, drilling and fishing tools, tanks and pumping jacks.

Subsidiaries of Dresser Manufacturing Co., in addition to Bovaird and Seyfang, now include: The Bryant Heater Co., Cleveland, Ohio; Clark Bros. Co., Inc., Olean, N. Y.; Pacific Pump Works, Huntington Park, Calif.; and Dresser Manufacturing Co., Ltd., Toronto, Ontario, Canada.

■ ■

New Storage Tank Doubles Capacity at Sturgis, Mich.

The National Utility Co. of Michigan, Sturgis, Mich., is constructing a new gas-storage tank to double its present capacity of 100,000 cu. ft. The new structure will stand 56 feet high and have a diameter of 73 feet and eight inches. Arthur E. Schwonteck, manager of the company, estimated that the building of the tank will take from six to eight weeks.

■ ■

No Utility Price Regulation

The Price Control Bill provides that "nothing in this act shall be construed to authorize the regulation of rates charged by any common carrier or other public utility."